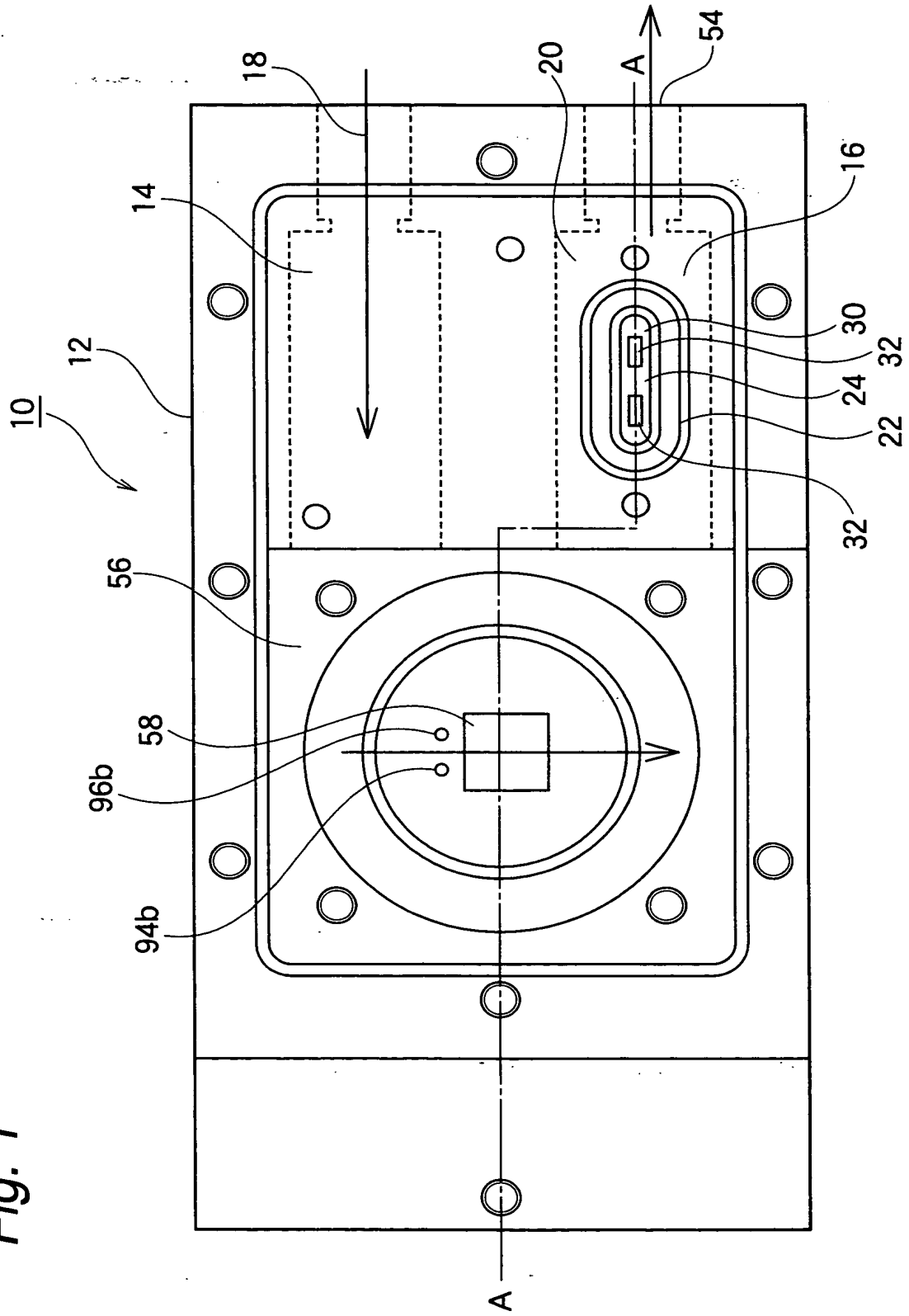


Fig. 1

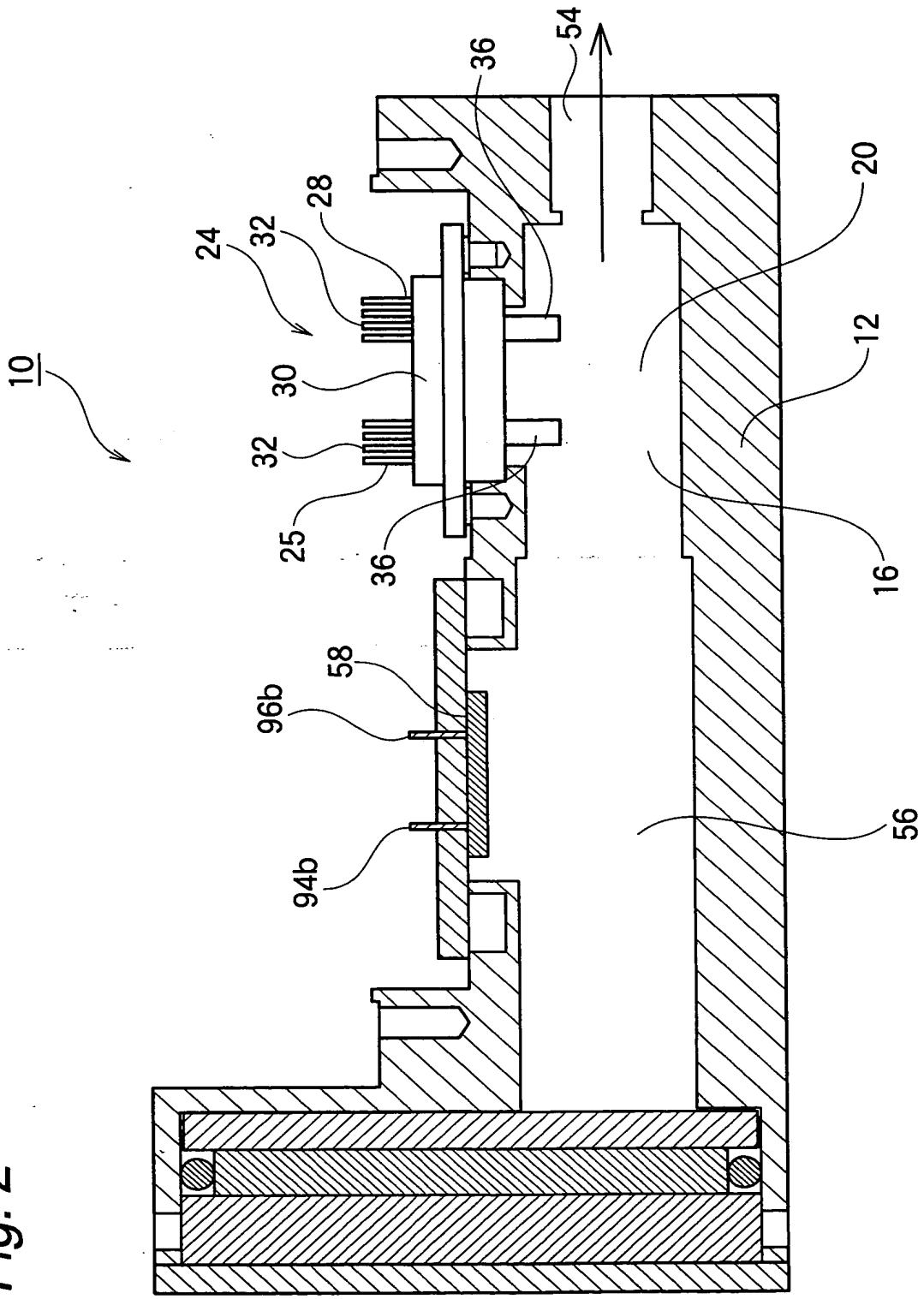


Fig. 2

10/529796

Fig. 3

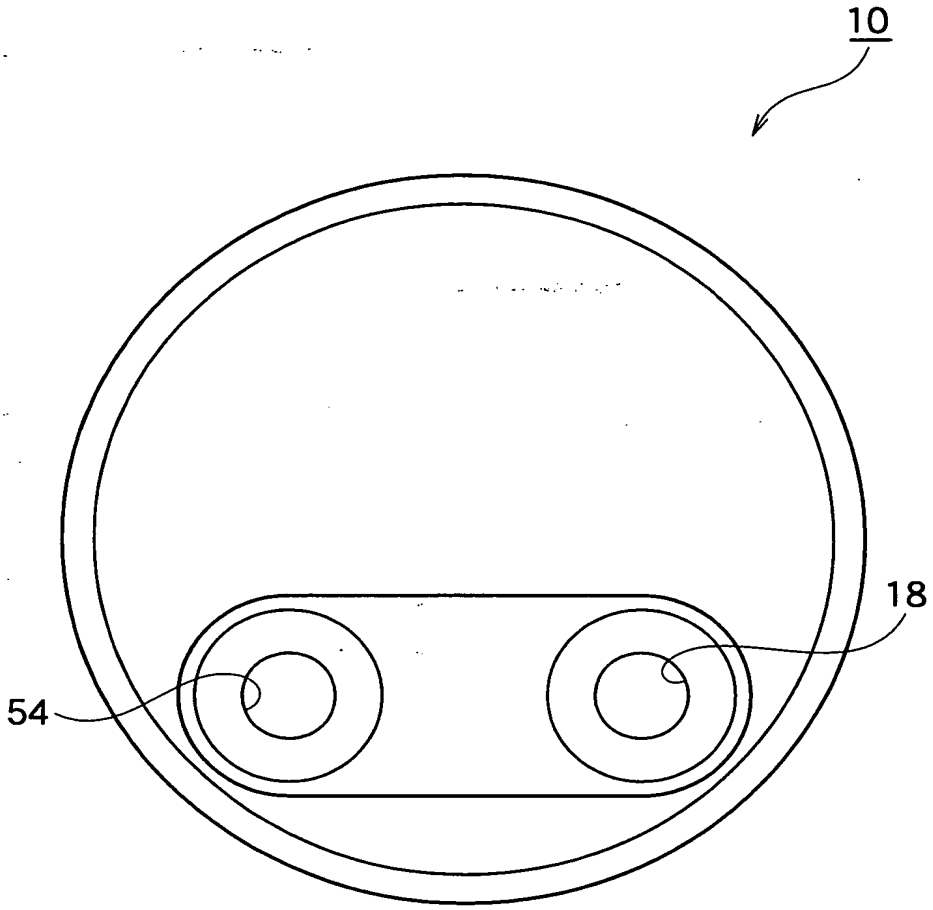


Fig. 4

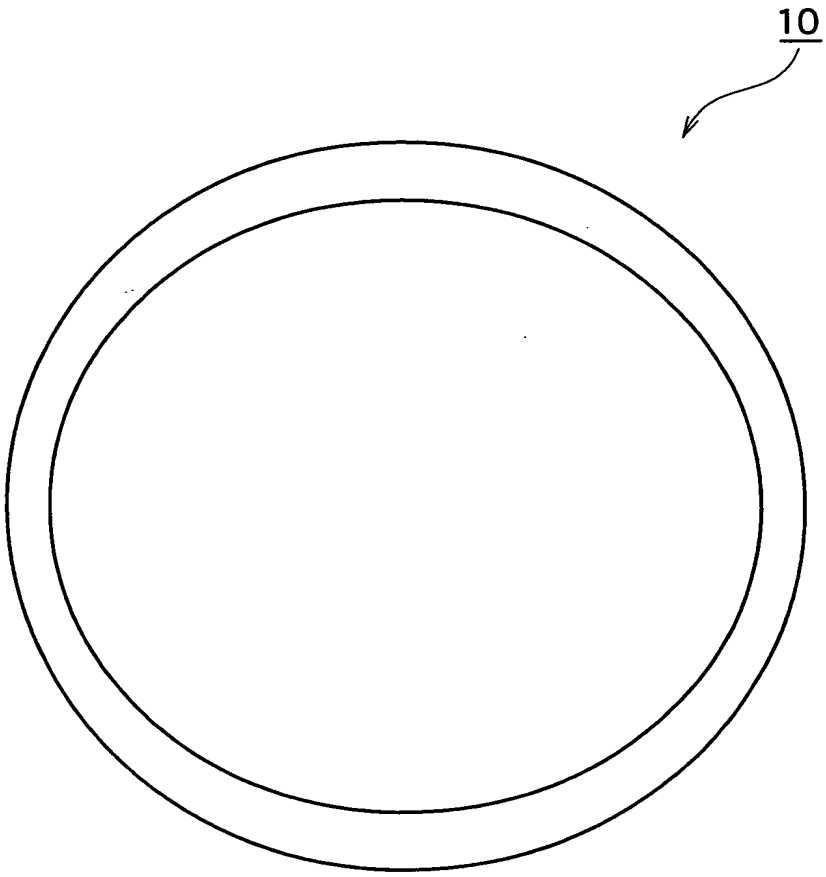


Fig. 5

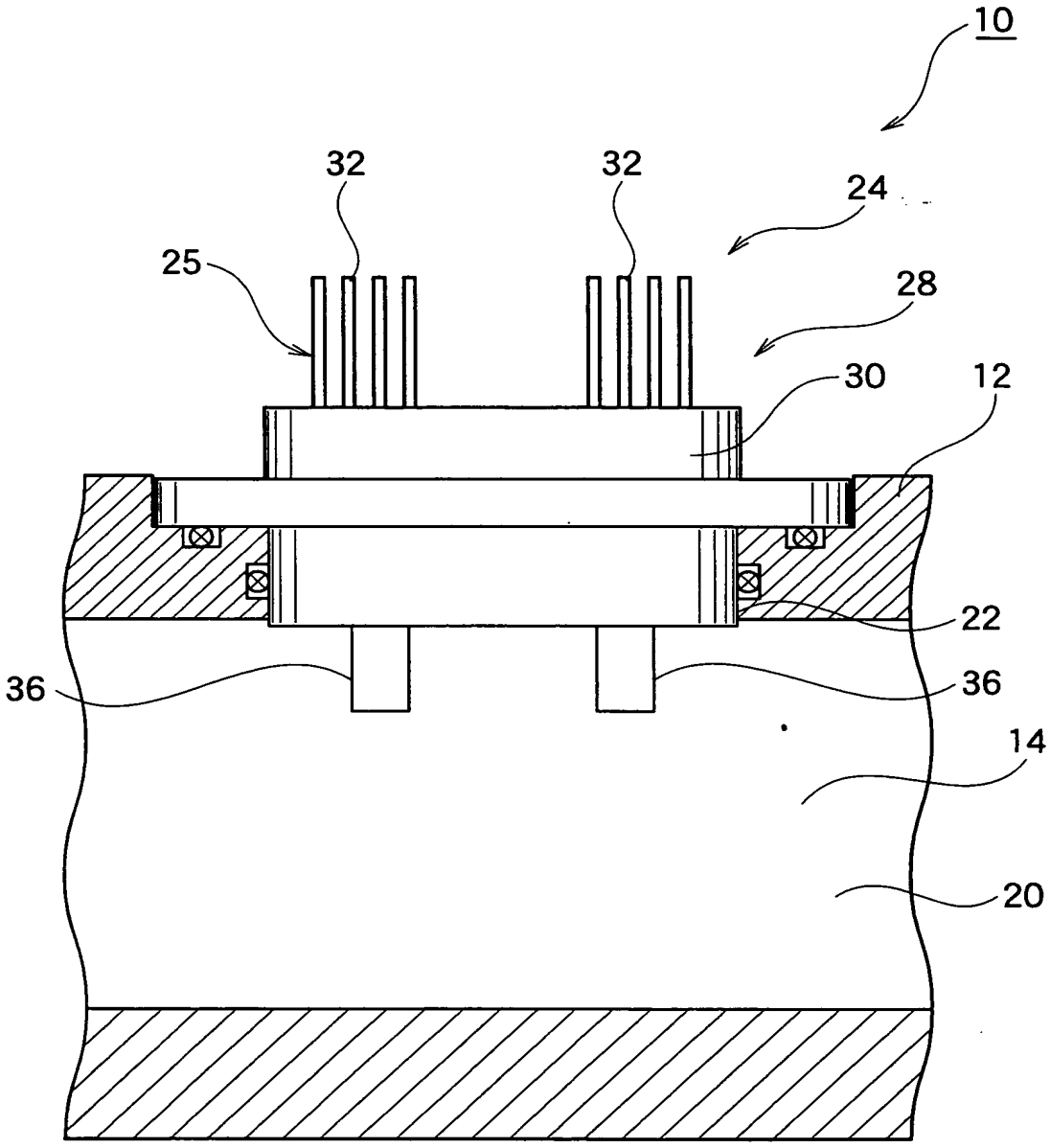
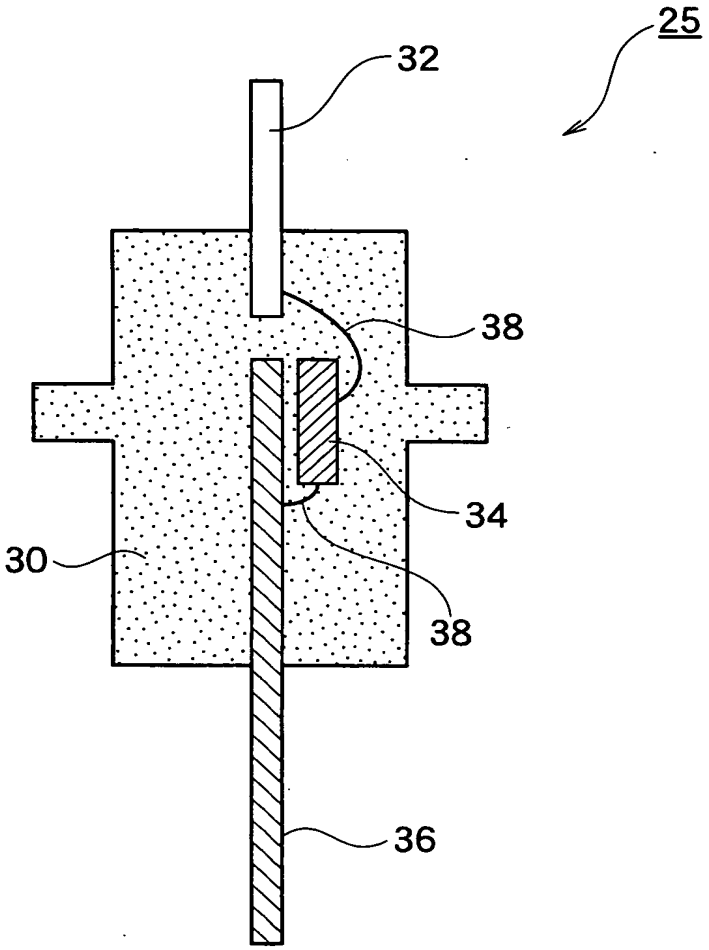
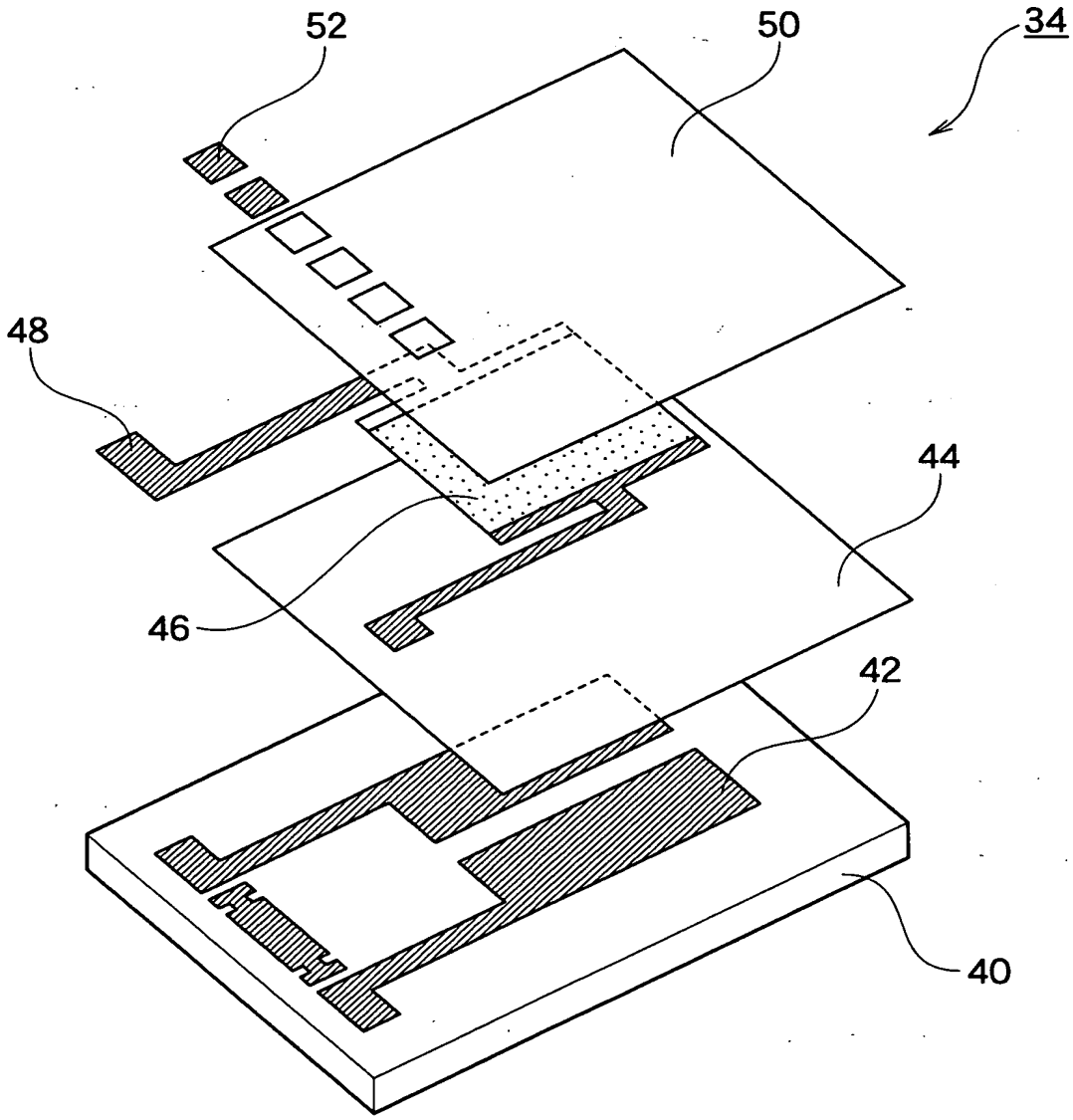


Fig. 6



10/529796

Fig. 7



10/532796

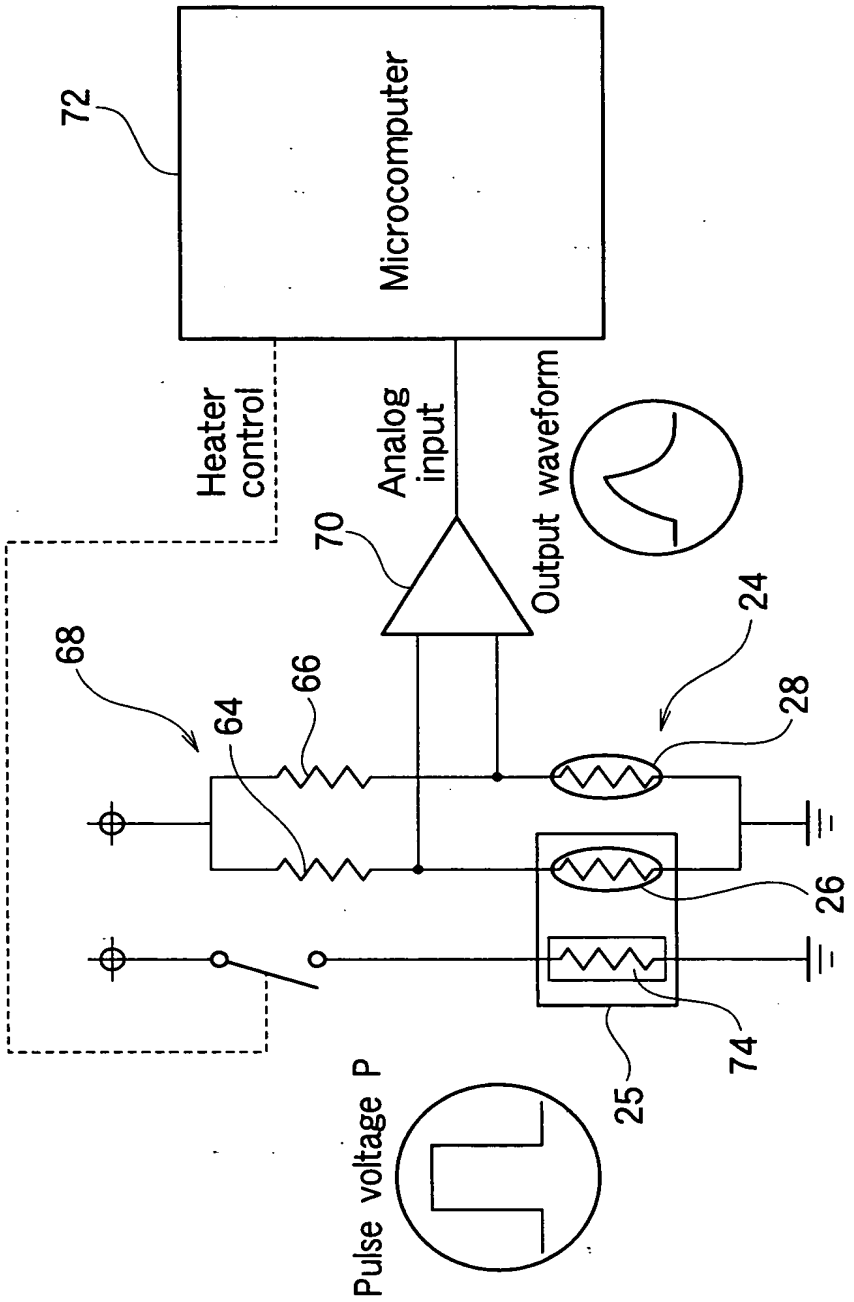
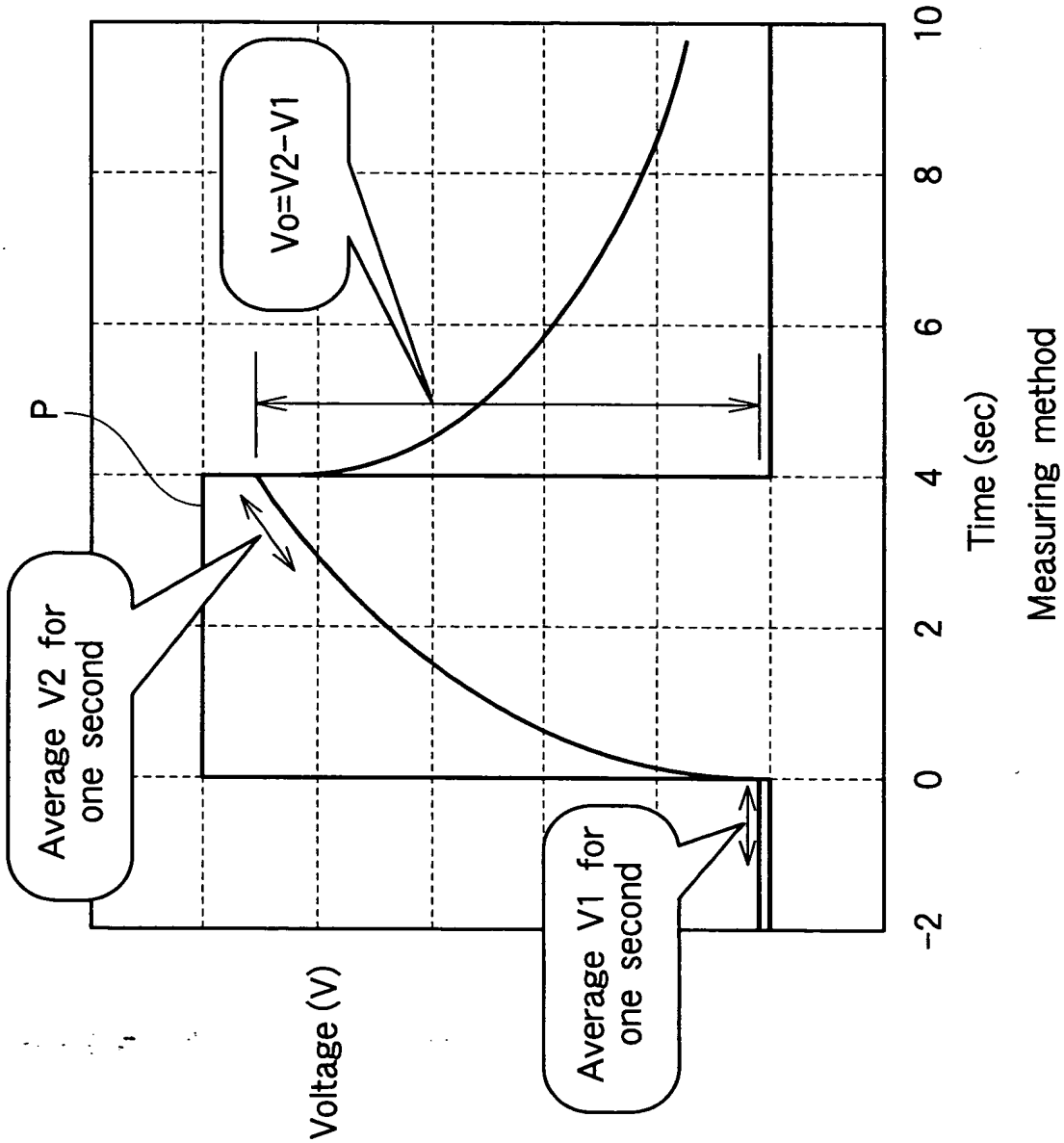


Fig. 8

Fig. 9


Vo=V2-V1
P
Average V2 for one second
Average V1 for one second
Voltage (V)
-2
0
2
4
6
8
10
Time (sec)
Measuring method

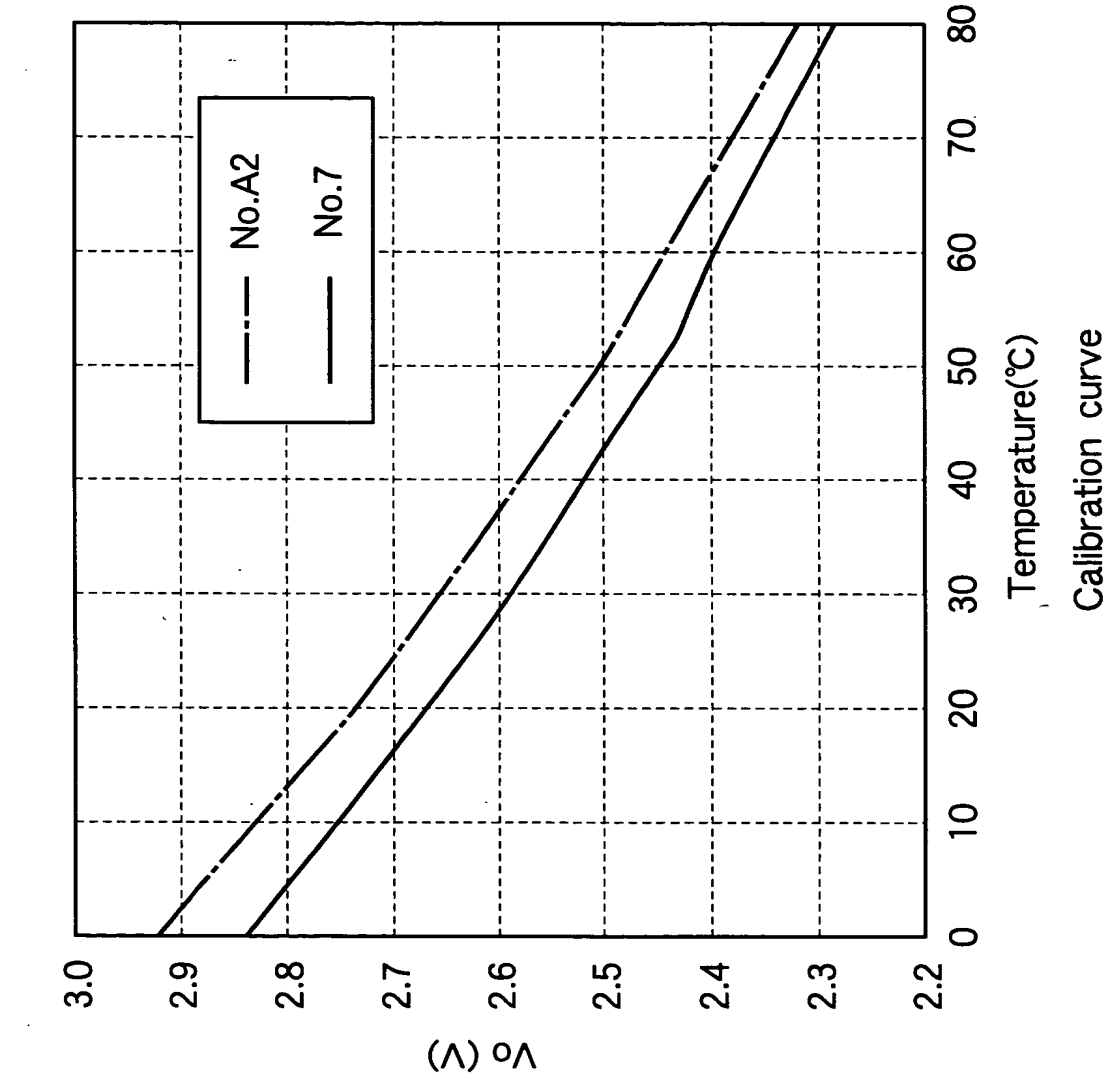
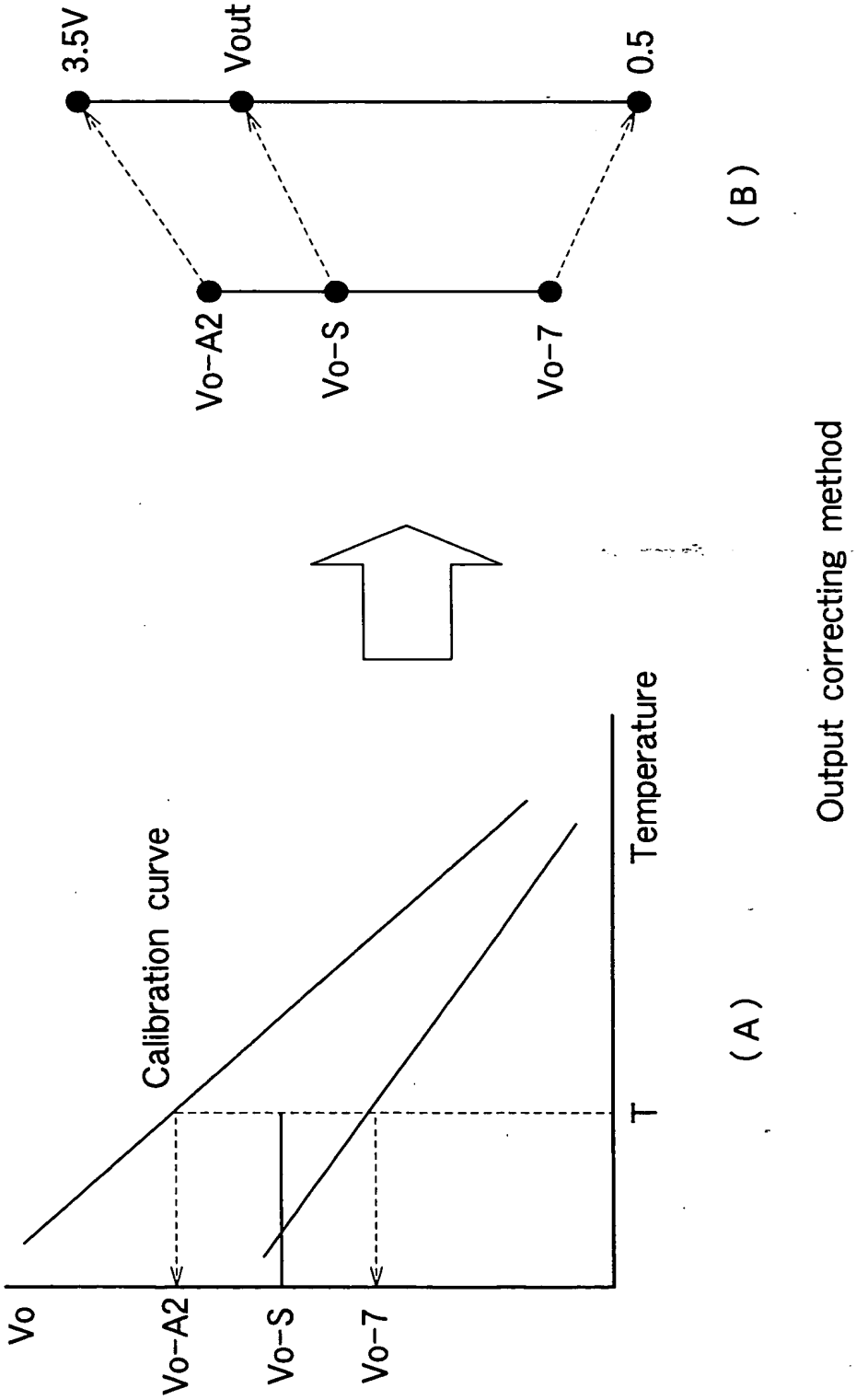

No.A2
No.7
Vo (V)
3.0
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
0
10
20
30
40
50
60
70
80
Temperature(℃)
Calibration curve

Fig. 10

Fig. 11


Output correcting method
(A)
Calibration curve
Temperature
T
Vo
Vo-A2
Vo-S
Vo-7
(B)
3.5V
Vout
0.5
Vo-A2
Vo-S
Vo-7

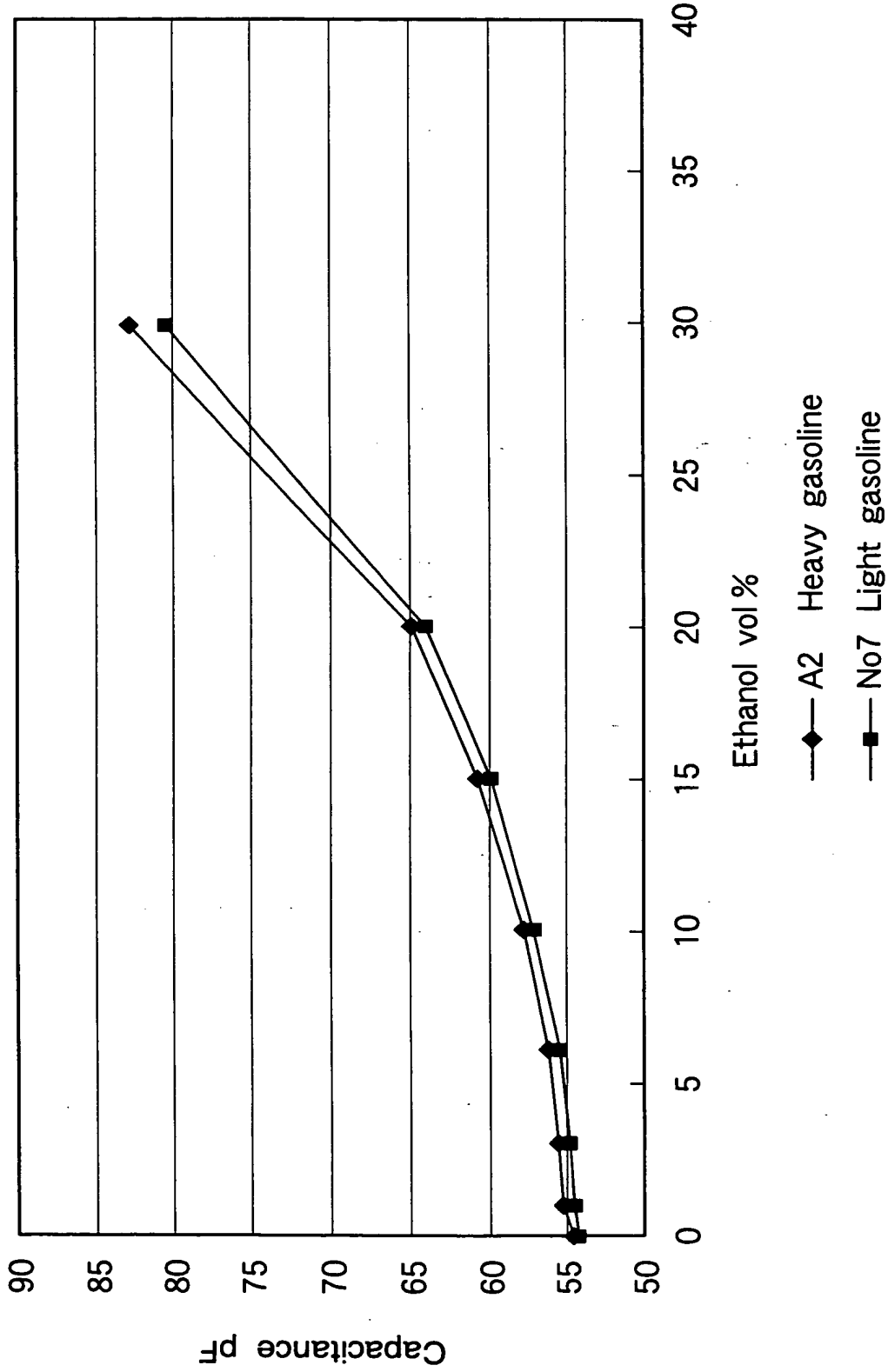

Capacitance pF
90
85
80
75
70
65
60
55
50
0
5
10
15
20
25
30
35
40
Ethanol vol %
A2 Heavy gasoline
No7 Light gasoline

Fig. 12

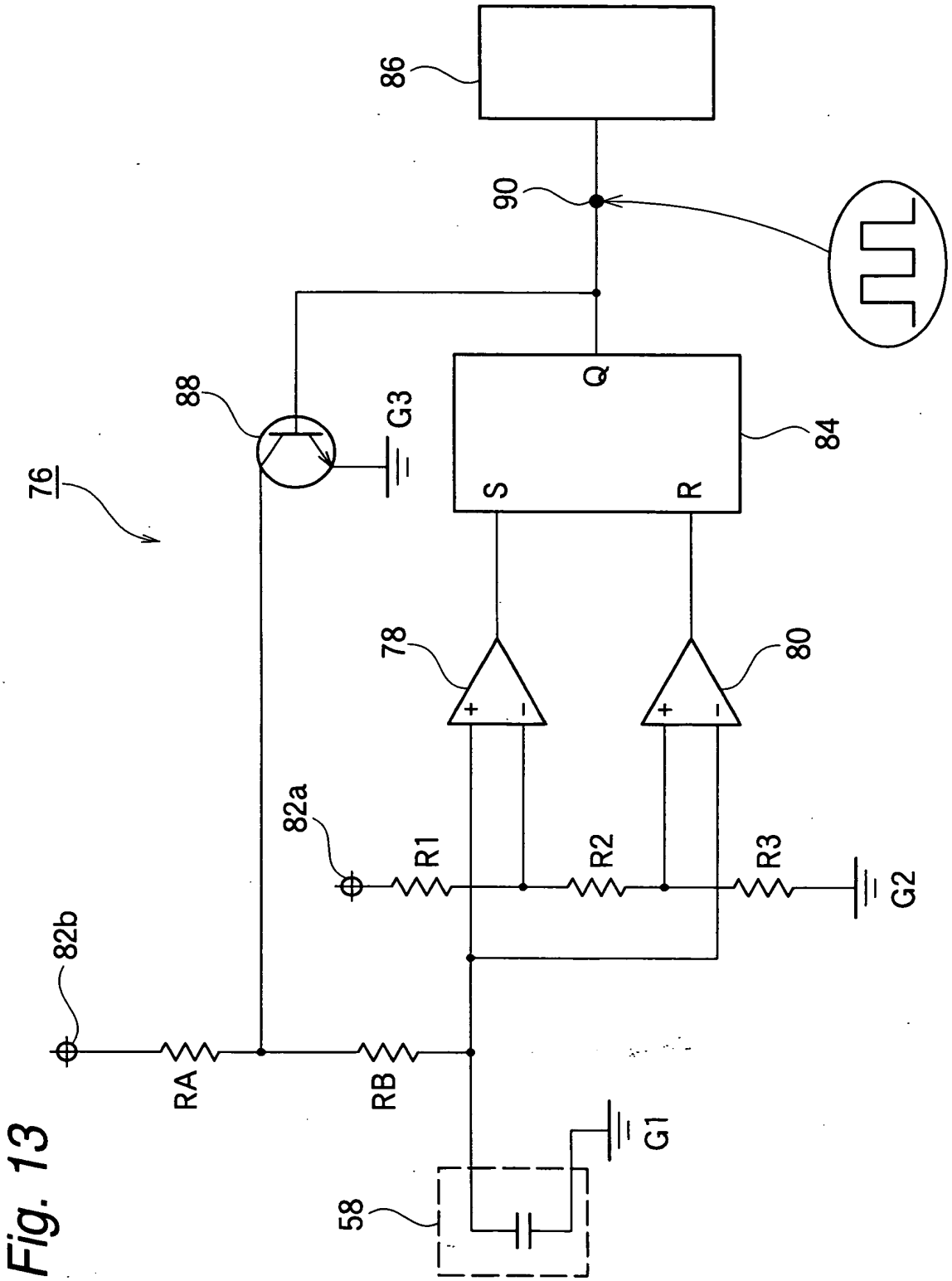
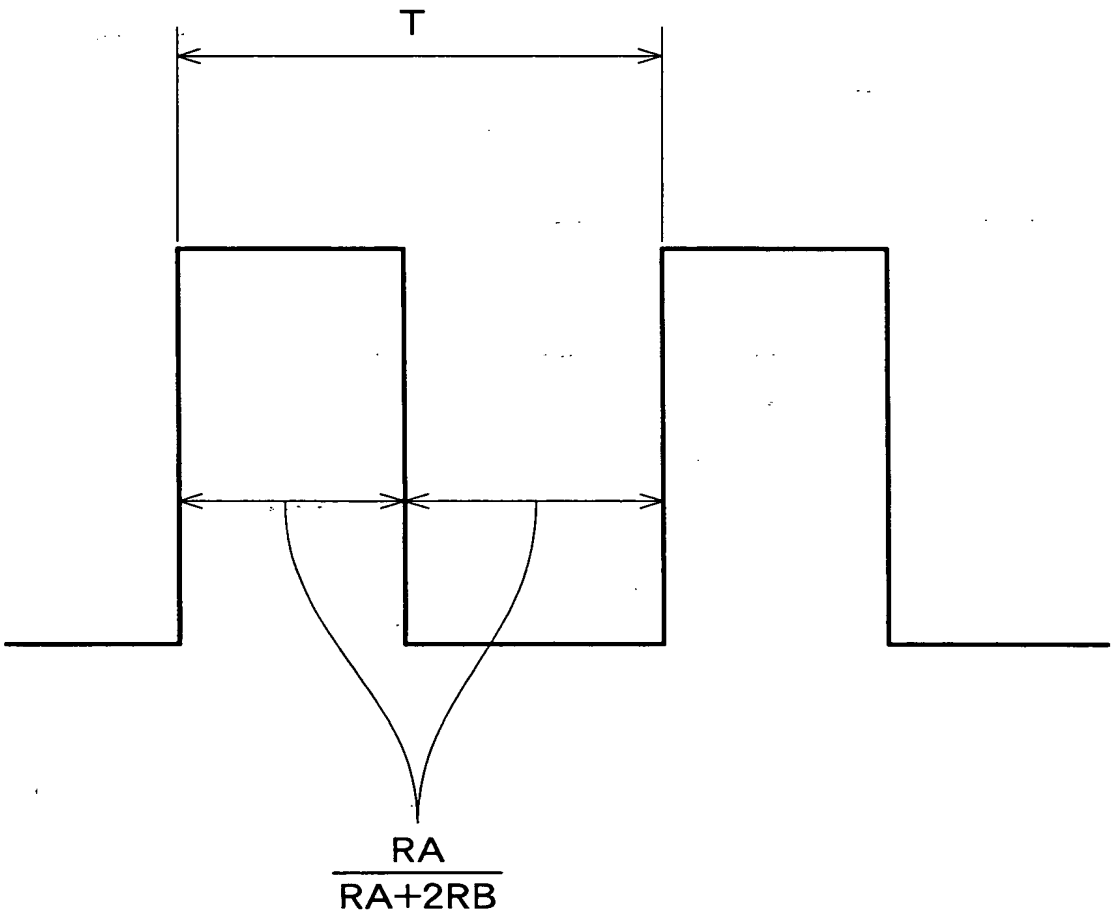


Fig. 13

Fig. 14



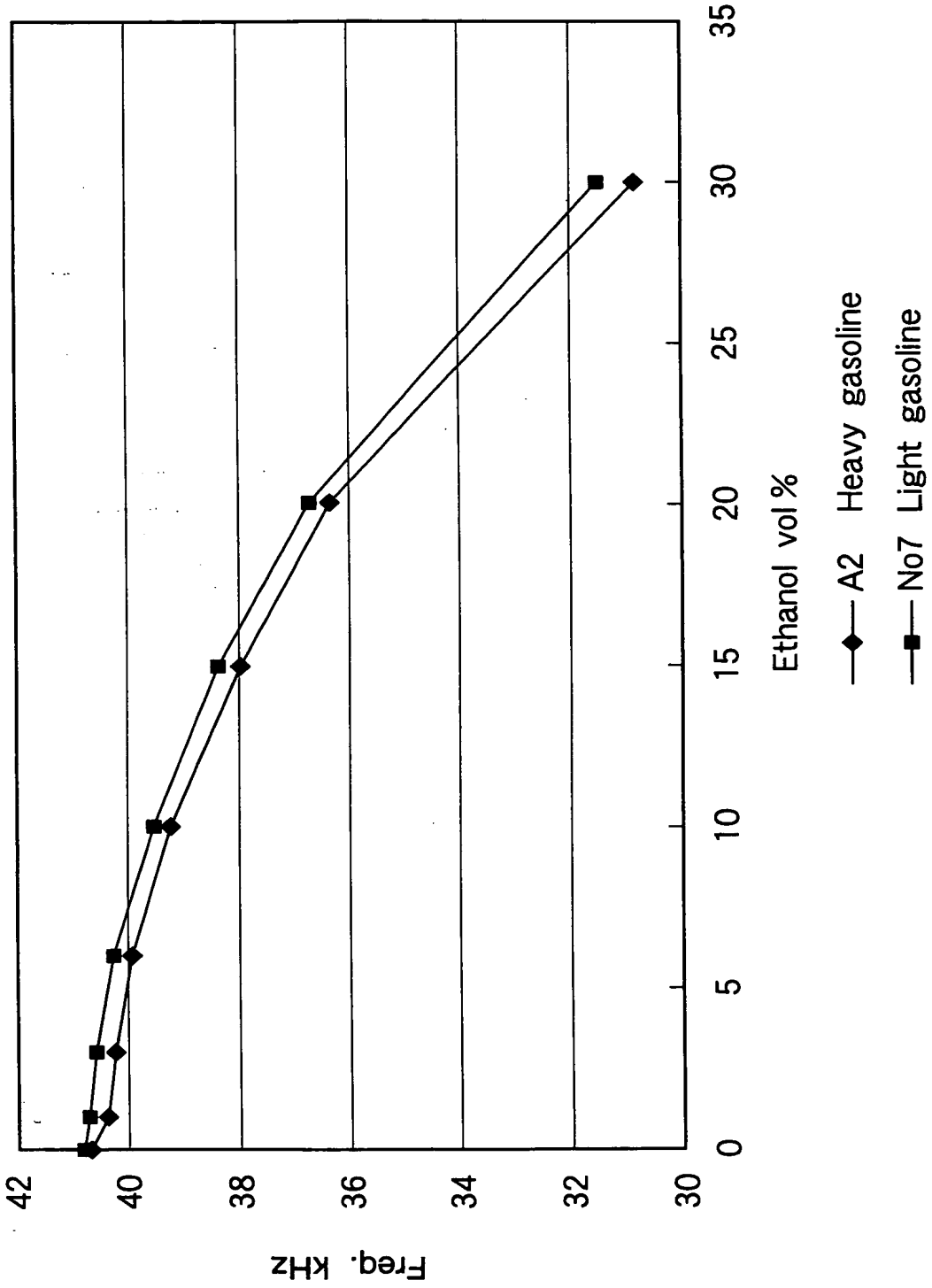

Freq. kHz
42
40
38
36
34
32
30
0
5
10
15
20
25
30
35
Ethanol vol %
A2 Heavy gasoline
No7 Light gasoline

Fig. 15

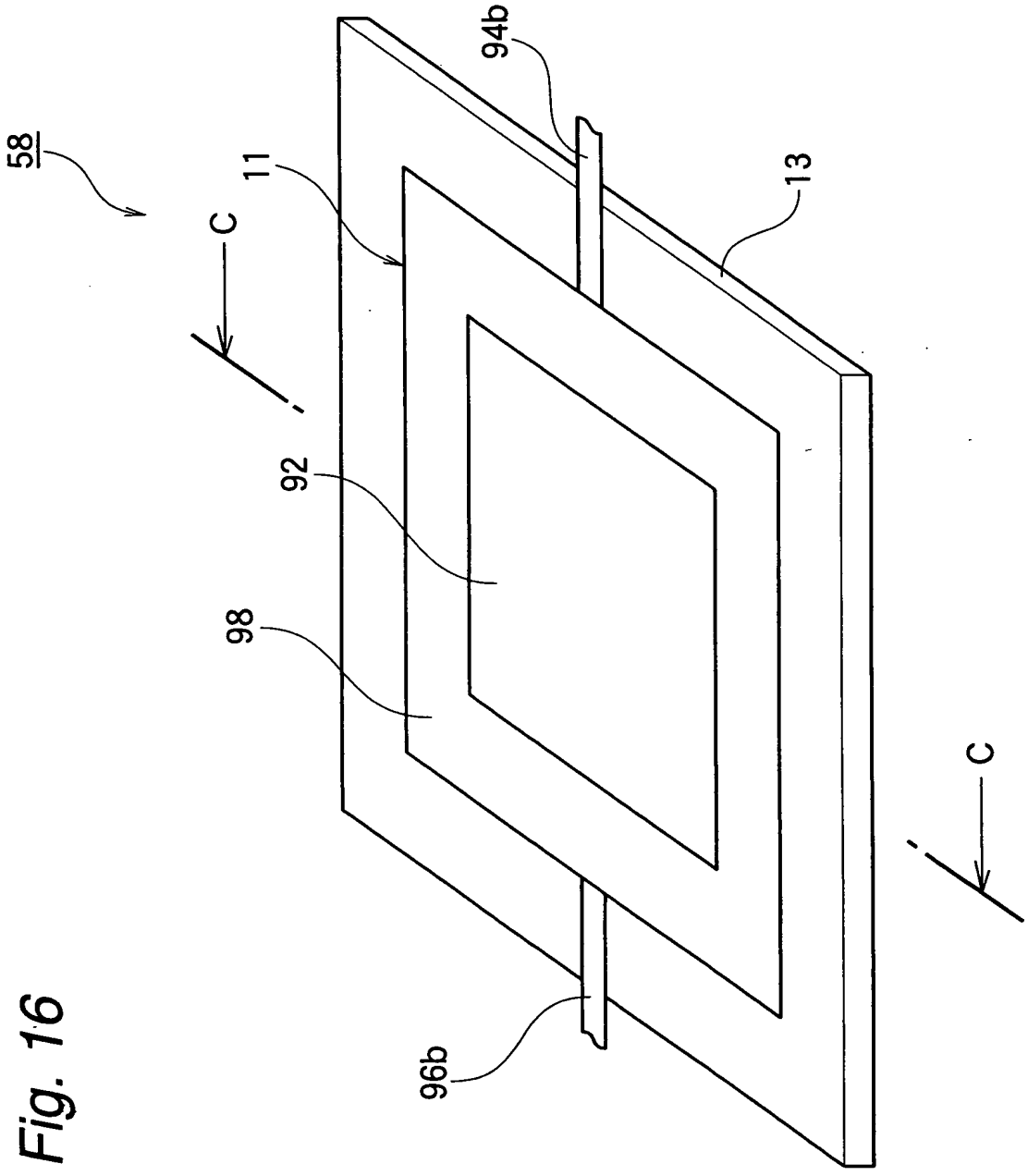


Fig. 16

Fig. 17

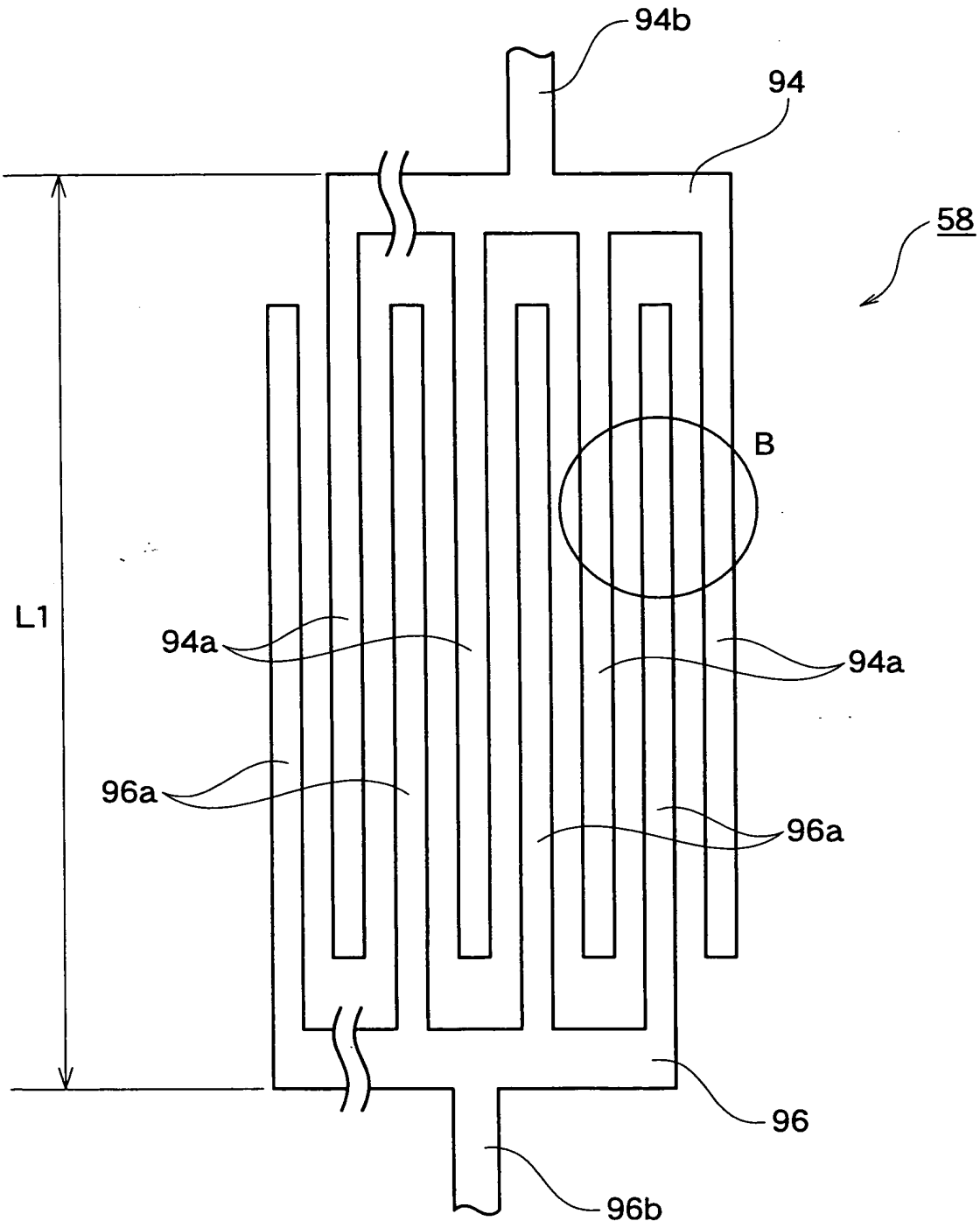
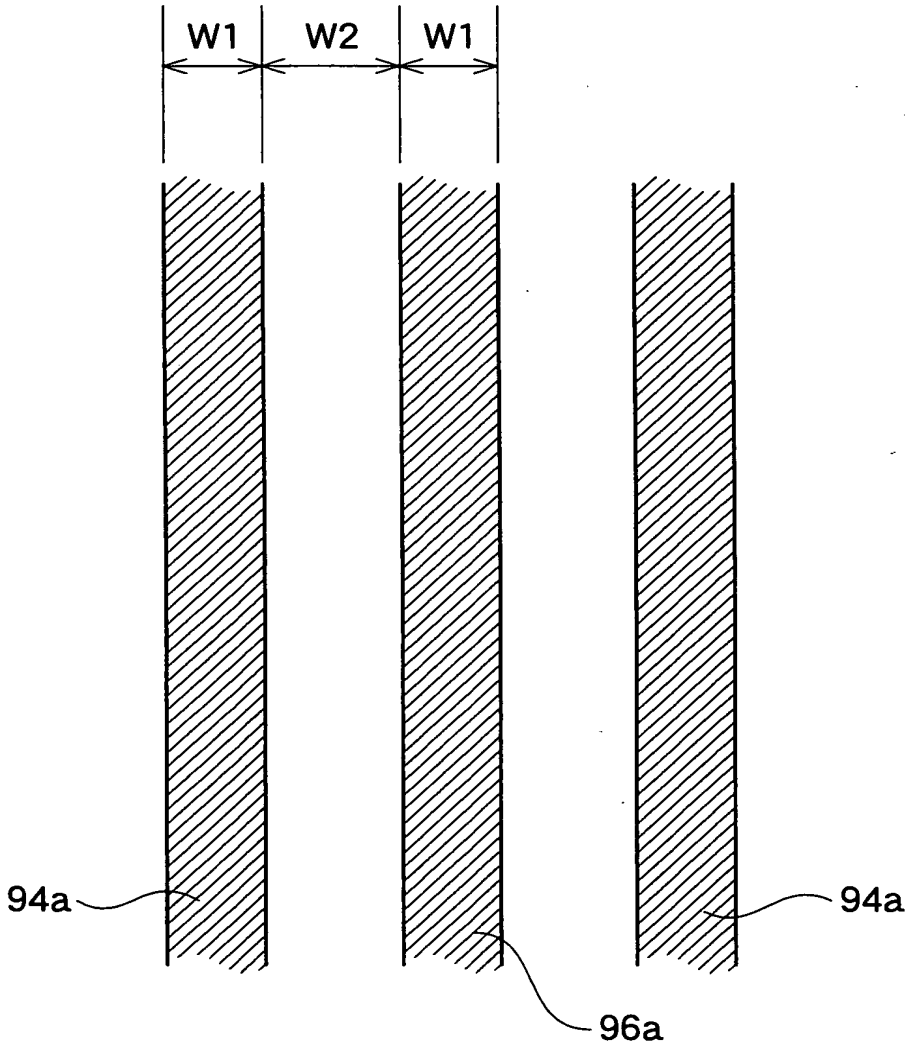


Fig. 18



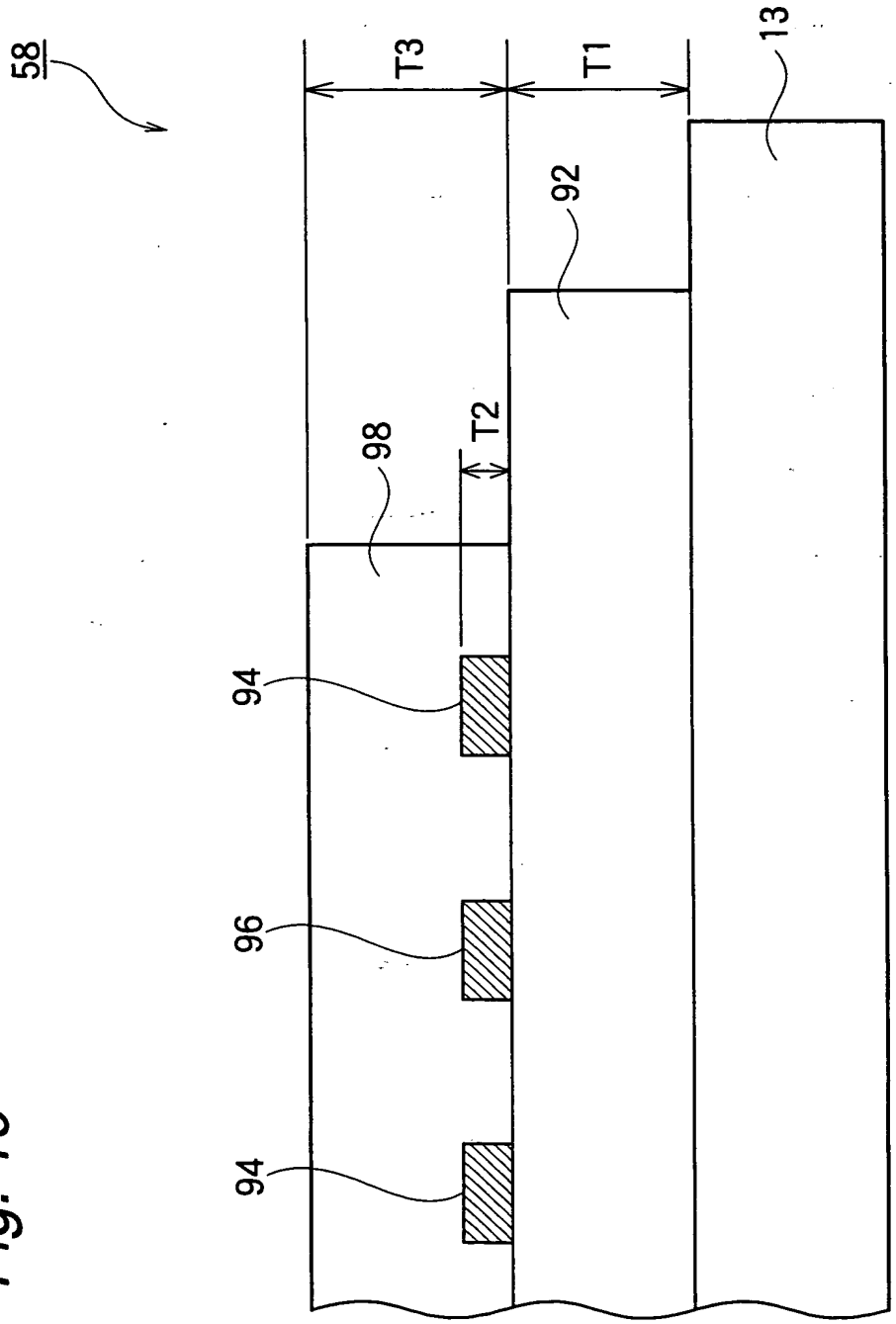
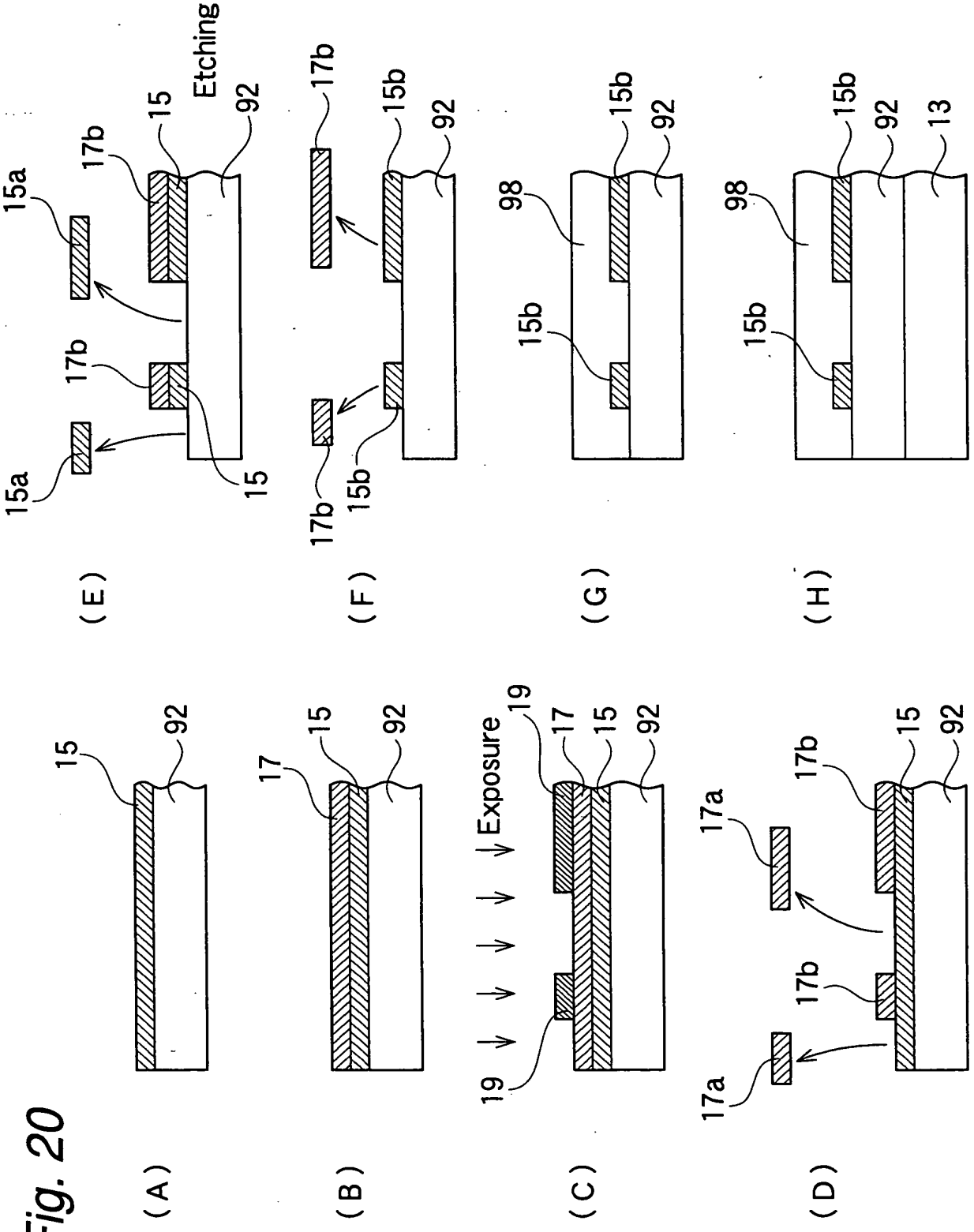


Fig. 19

Fig. 20


(A)
15
92
(B)
17
15
92
(C)
Exposure
19
17
15
92
19
(D)
17a
17b
15
92
17a
17b
(E)
15a
17b
15
Etching
92
15a
17b
15
(F)
17b
15b
92
17b
15b
(G)
98
15b
92
15b
(H)
98
15b
92
13
15b

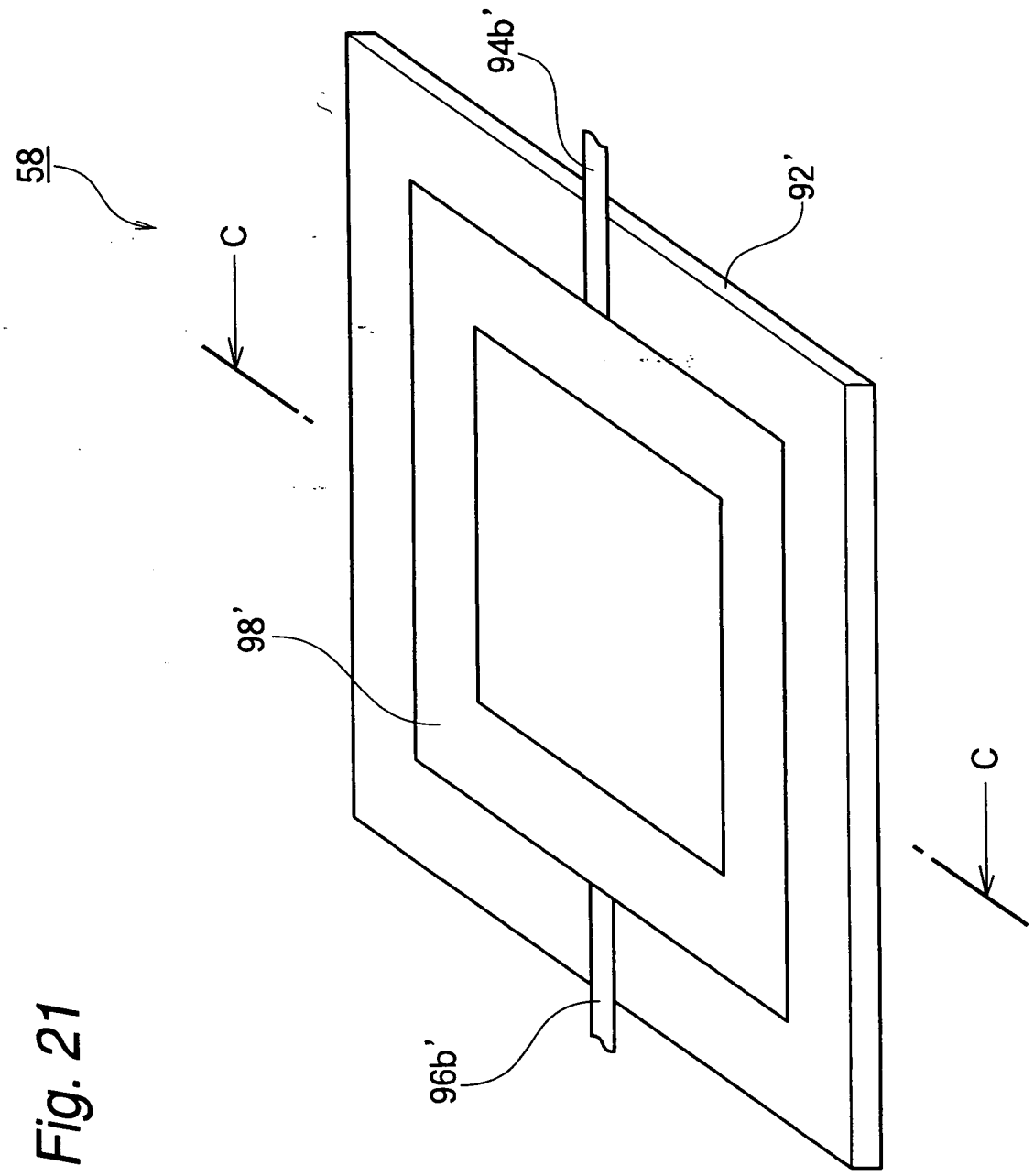


Fig. 21

Fig. 22

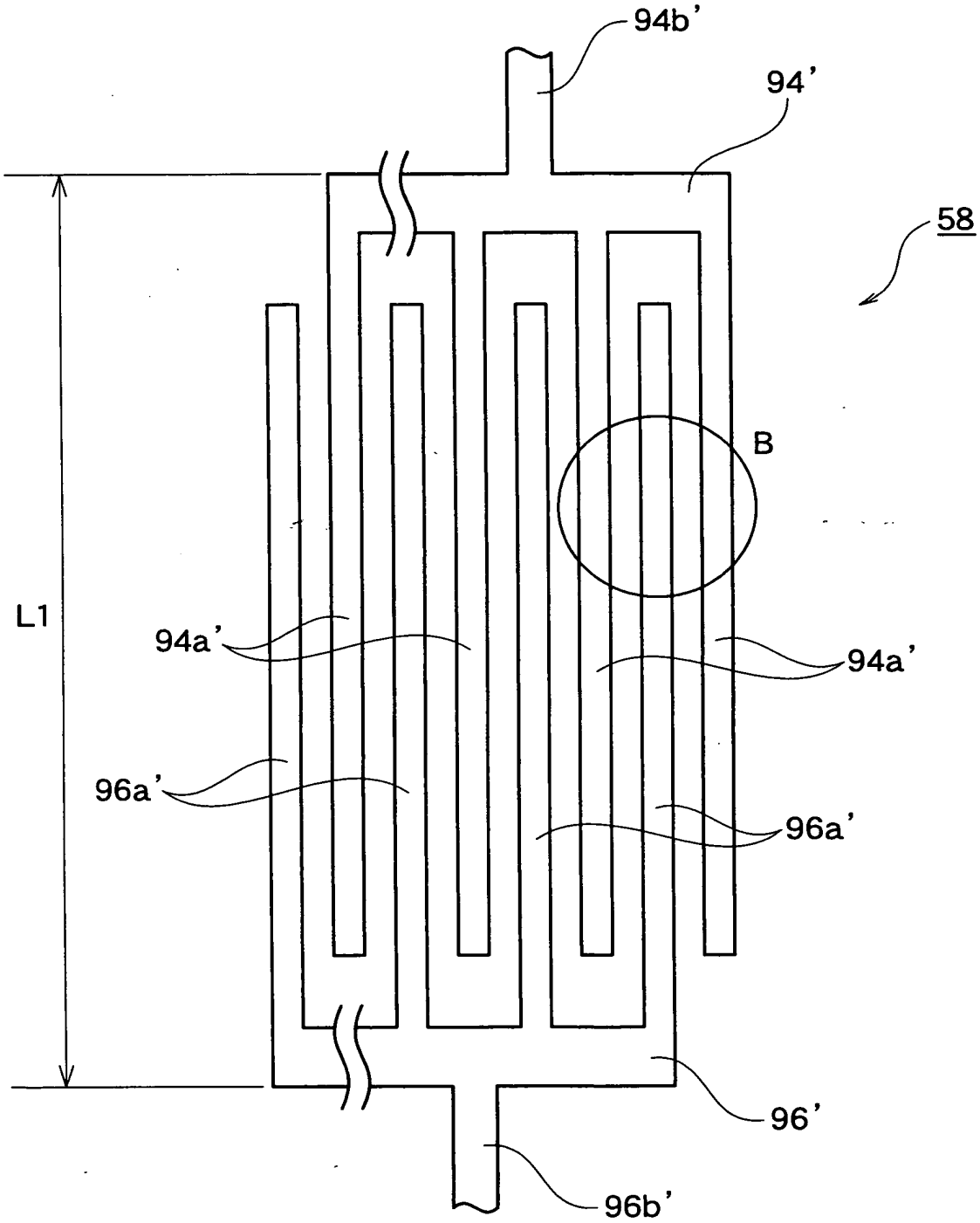
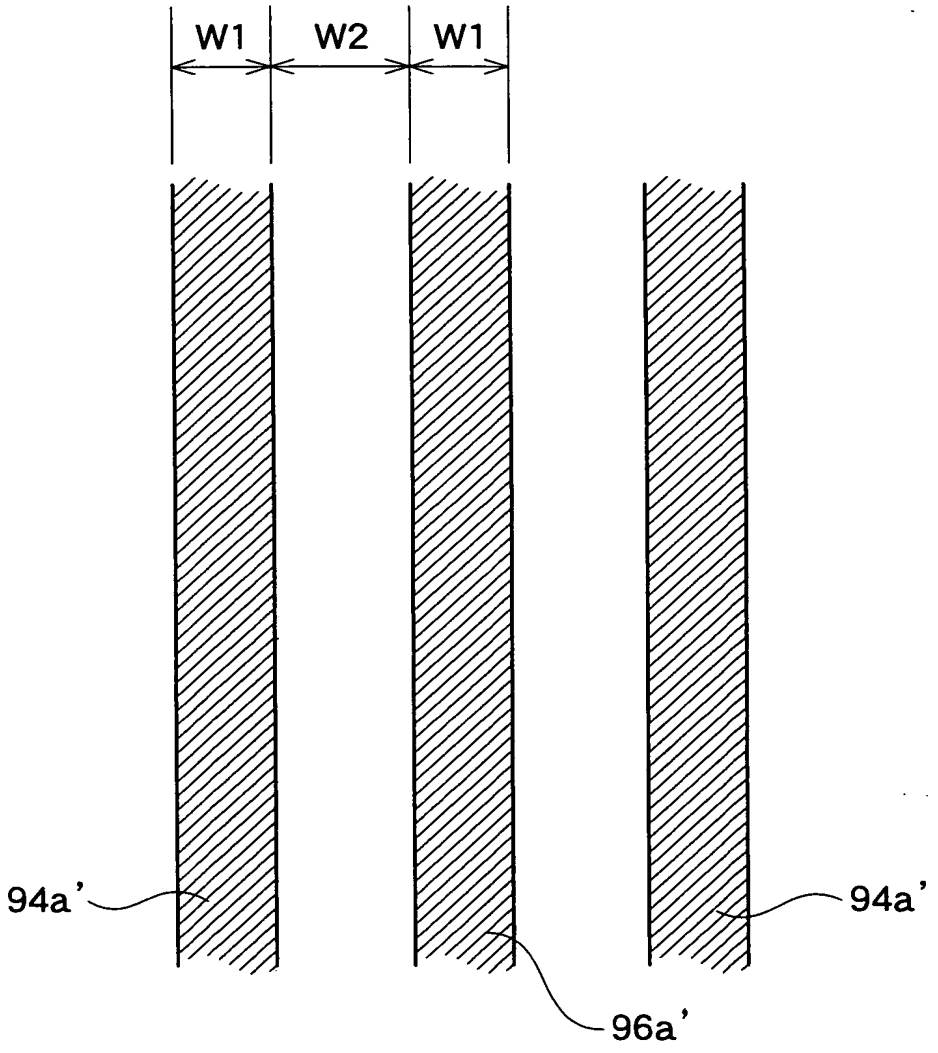


Fig. 23



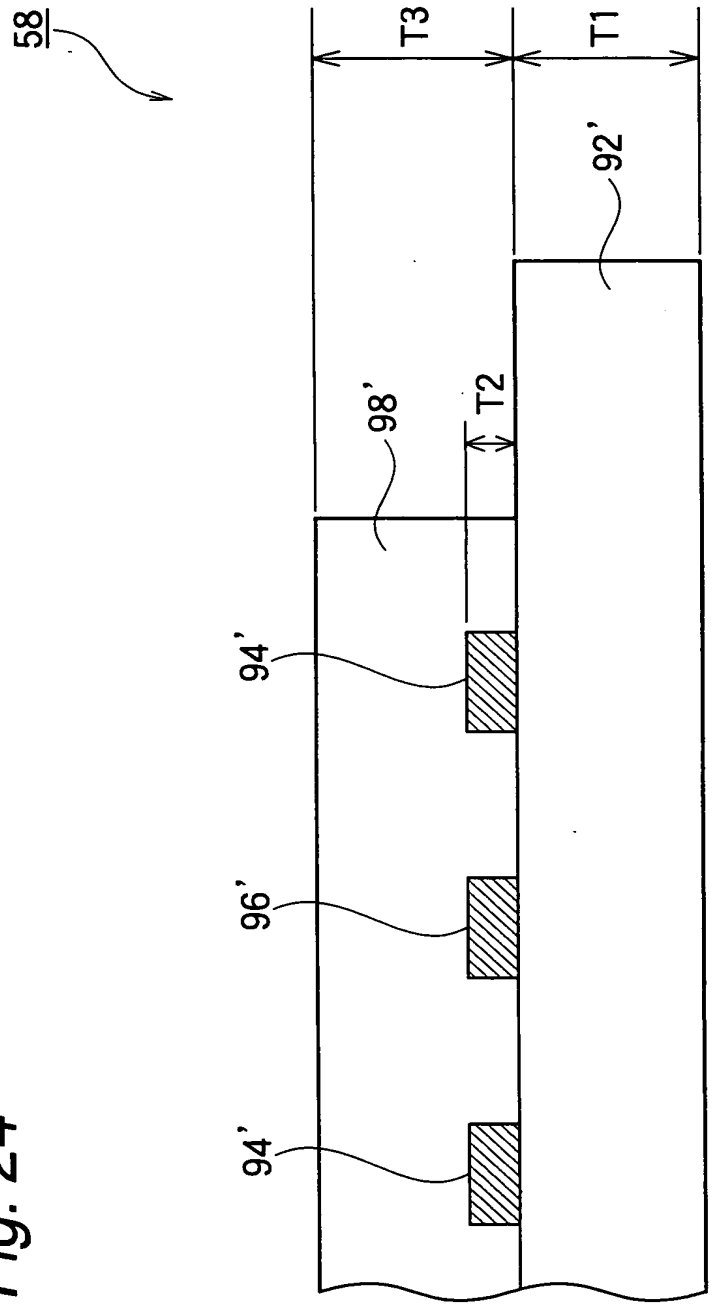
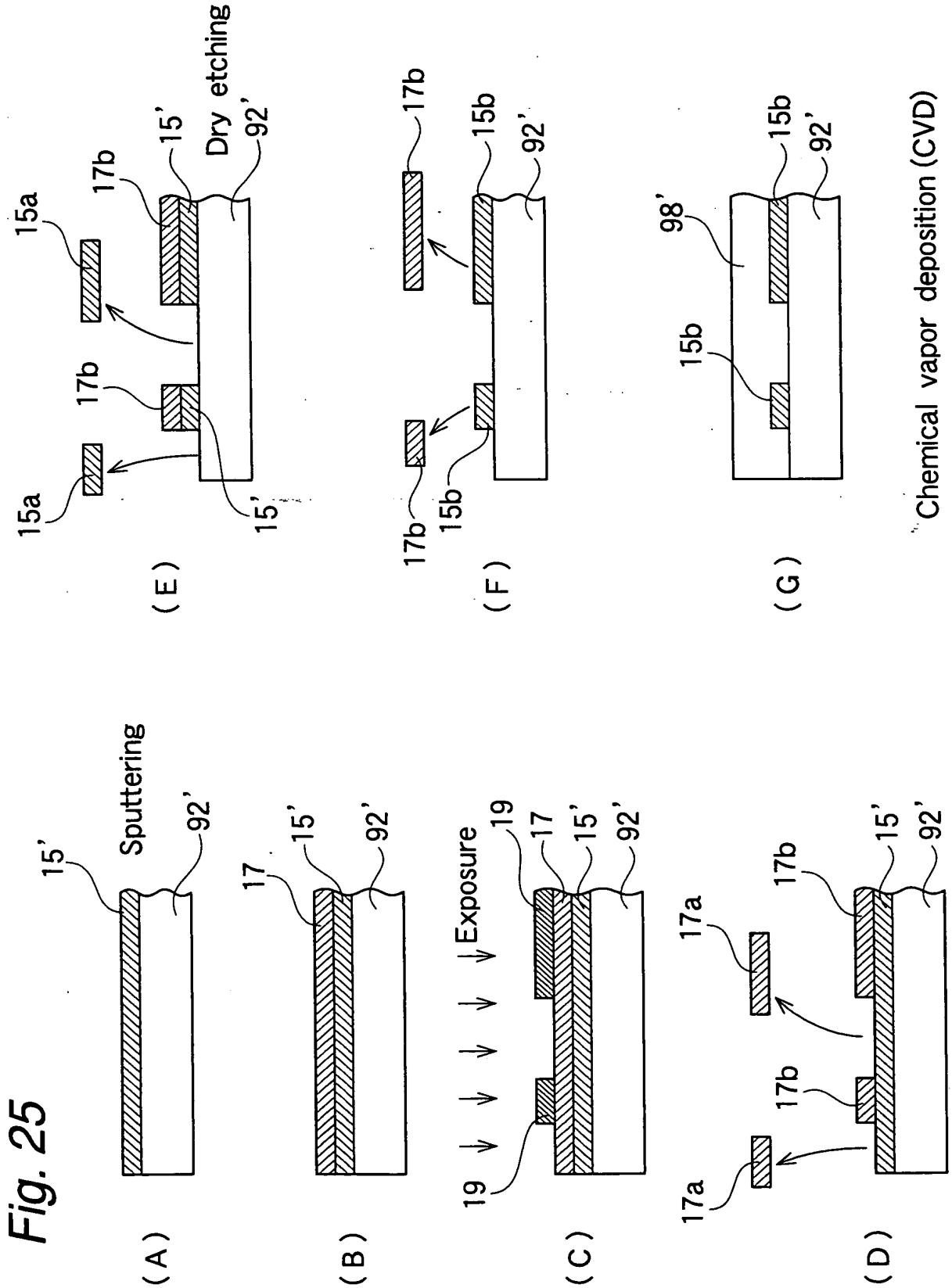


Fig. 24

Fig. 25


(A)
15'
Sputtering
92'
(B)
17
15'
92'
(C)
19
Exposure
19
17
15'
92'
(D)
17a
17b
15'
92'
17a
17b
(E)
15a
17b
15'
Dry etching
92'
15a
17b
15'
(F)
17b
15b
92'
17b
15b
(G)
98'
15b
92'
15b
Chemical vapor deposition (CVD)

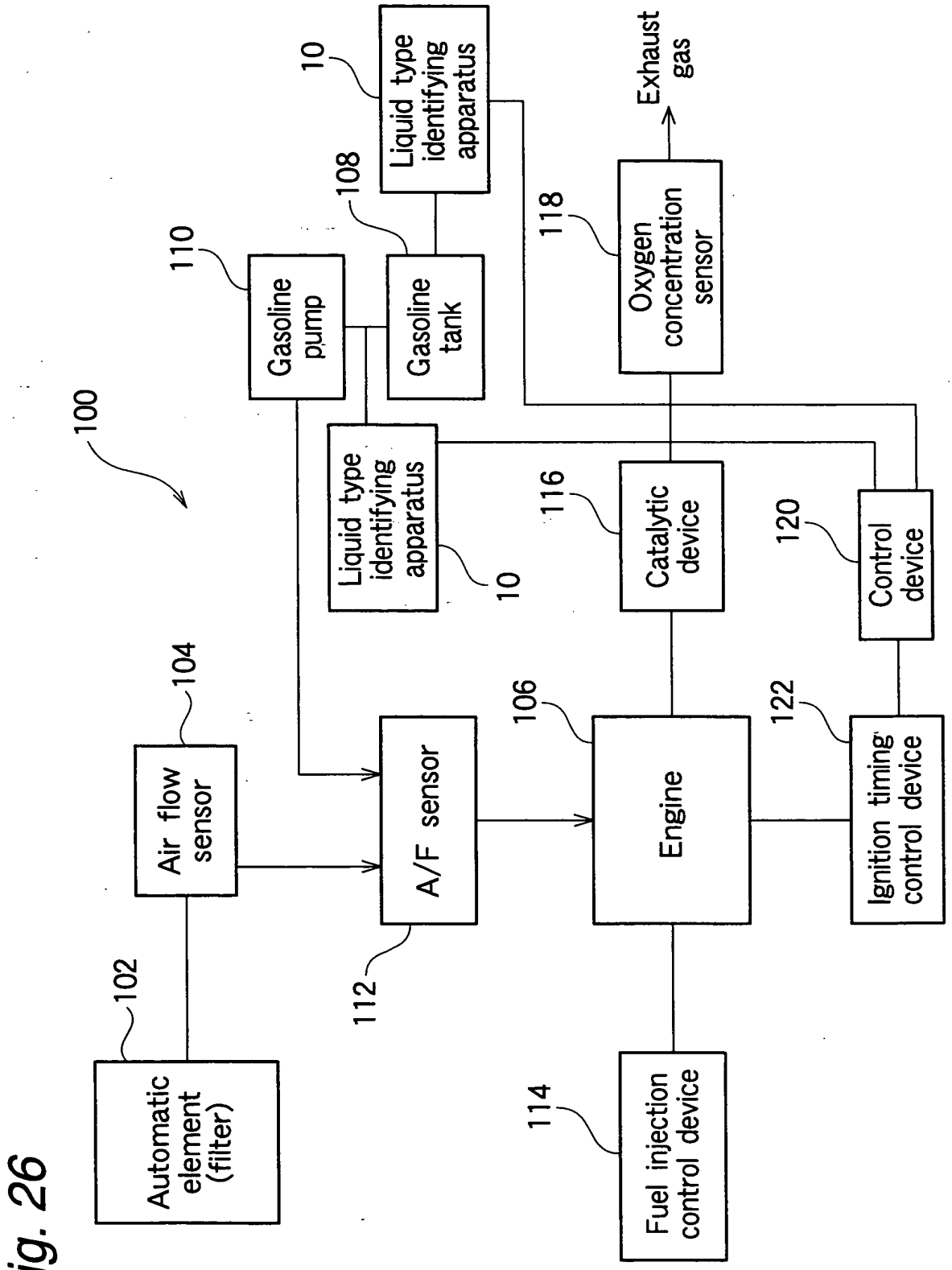

100
Automatic element (filter)
102
Air flow sensor
104
A/F sensor
112
Engine
106
Fuel injection control device
114
Ignition timing control device
122
Control device
120
Catalytic device
116
Oxygen concentration sensor
118
Exhaust gas
Liquid type identifying apparatus
10
Liquid type identifying apparatus
10
Gasoline tank
108
Gasoline pump
110

Fig. 26

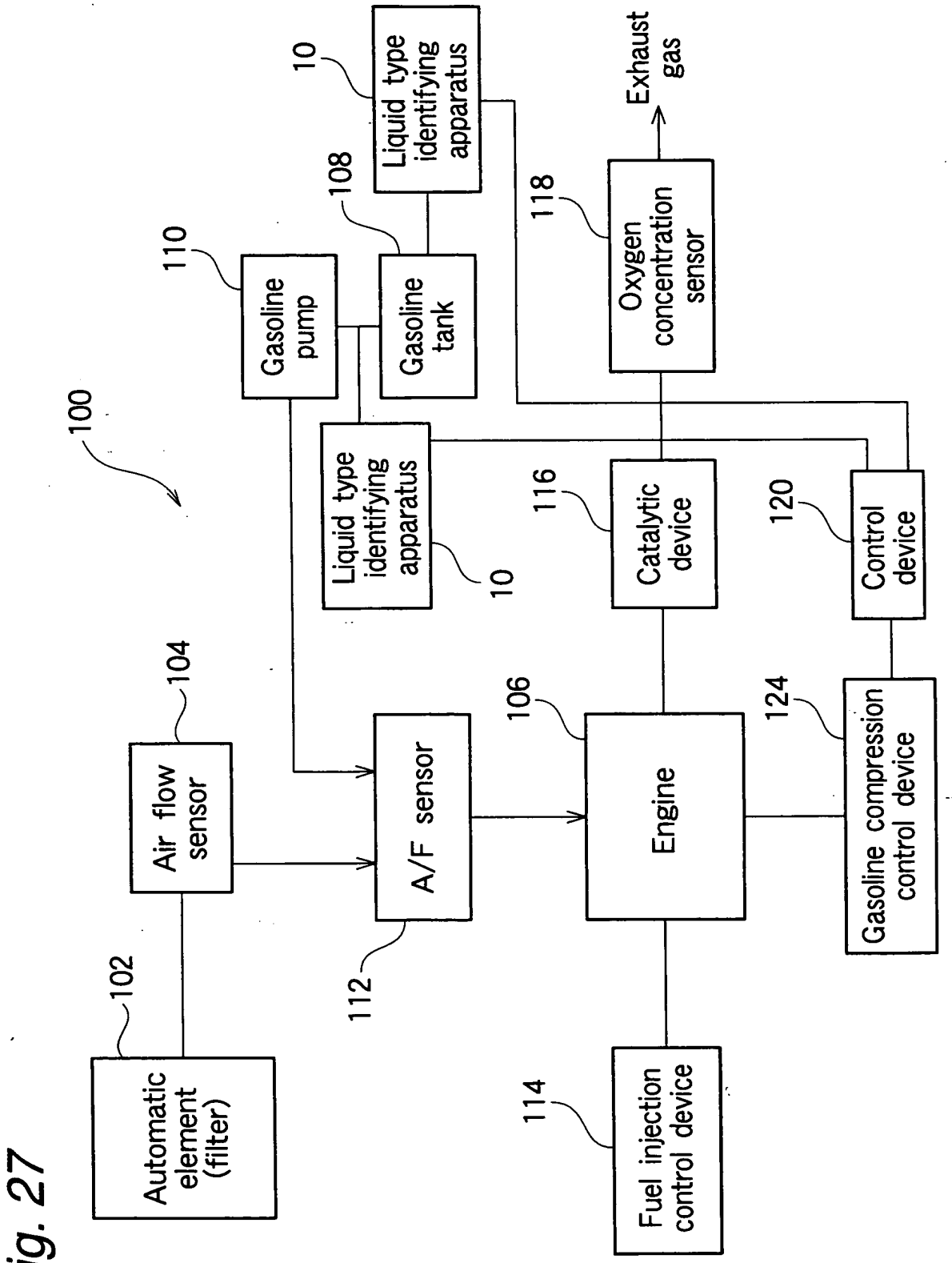

100
Automatic element (filter)
102
Air flow sensor
104
A/F sensor
112
Liquid type identifying apparatus
10
Gasoline pump
110
Gasoline tank
108
Liquid type identifying apparatus
10
Engine
106
Fuel injection control device
114
Catalytic device
116
Oxygen concentration sensor
118
Exhaust gas
Control device
120
Gasoline compression control device
124

Fig. 27

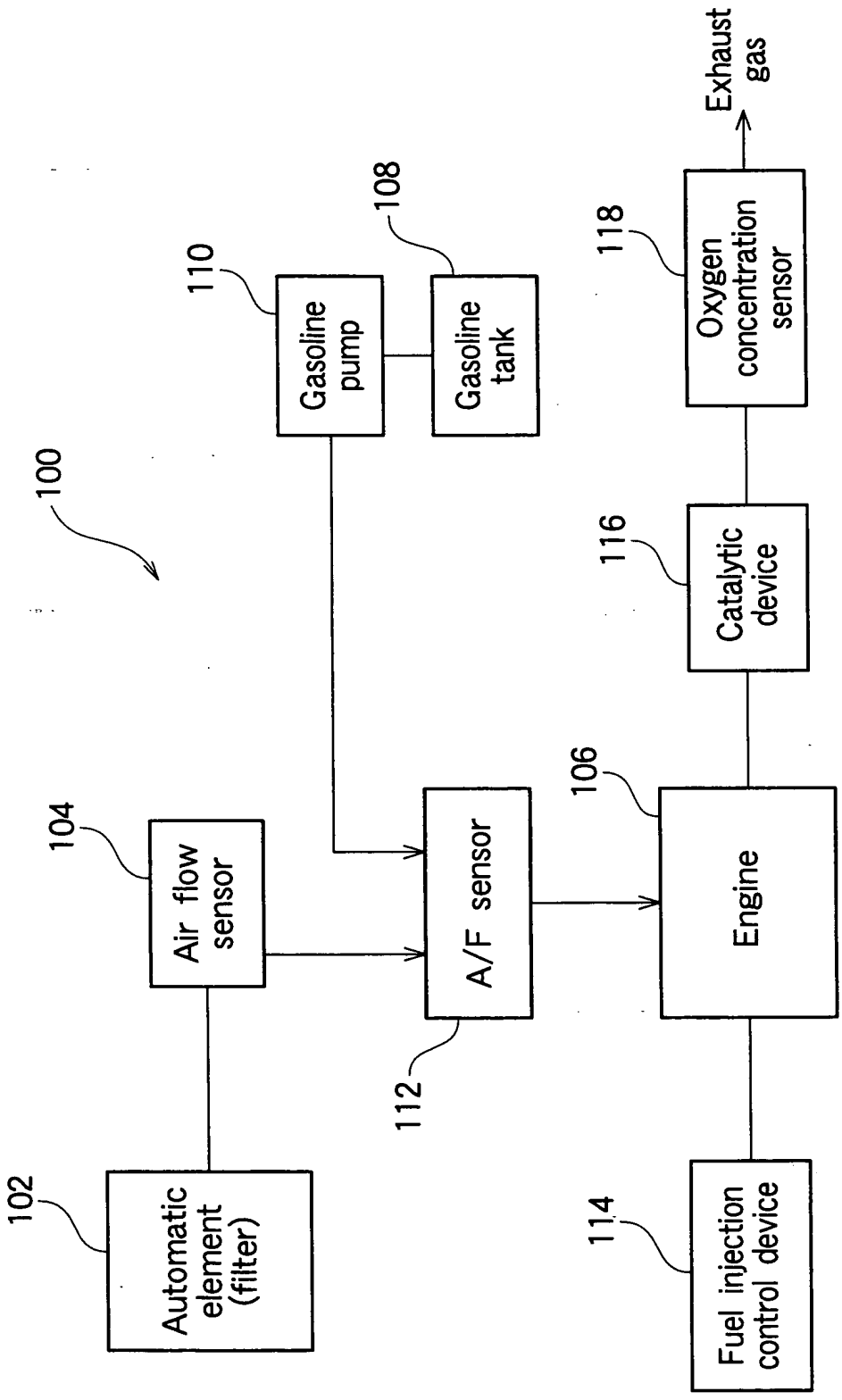

100
102
Automatic element (filter)
104
Air flow sensor
106
Engine
108
Gasoline tank
110
Gasoline pump
112
A/F sensor
114
Fuel injection control device
116
Catalytic device
118
Oxygen concentration sensor
Exhaust gas

Fig. 28

Fig. 29

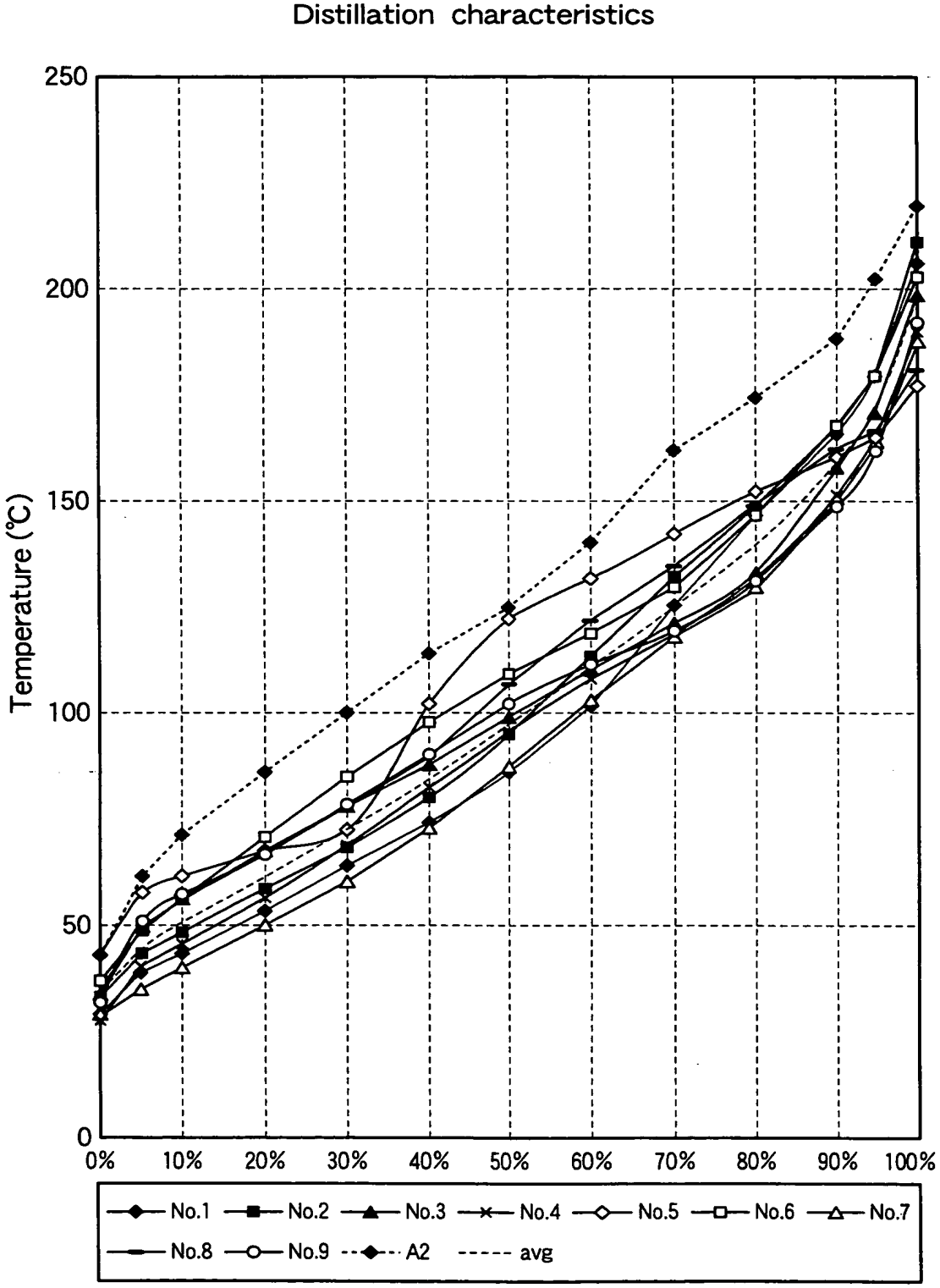
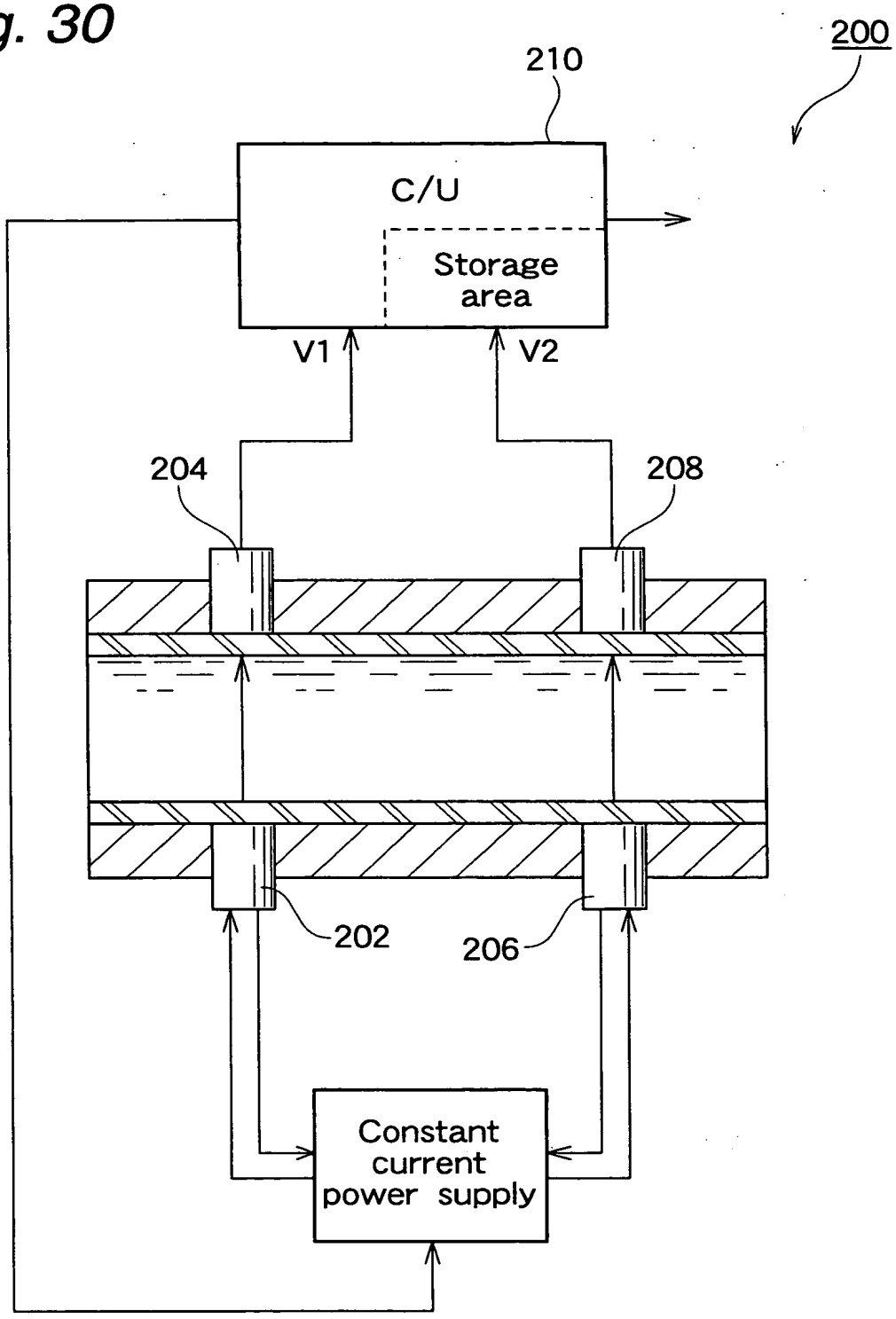

Distillation characteristics
Temperature (℃)
250
200
150
100
50
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
No.1
No.2
No.3
No.4
No.5
No.6
No.7
No.8
No.9
A2
avg

Fig. 30


200
210
C/U
Storage area
V1
V2
204
208
202
206
Constant current power supply

10/529796

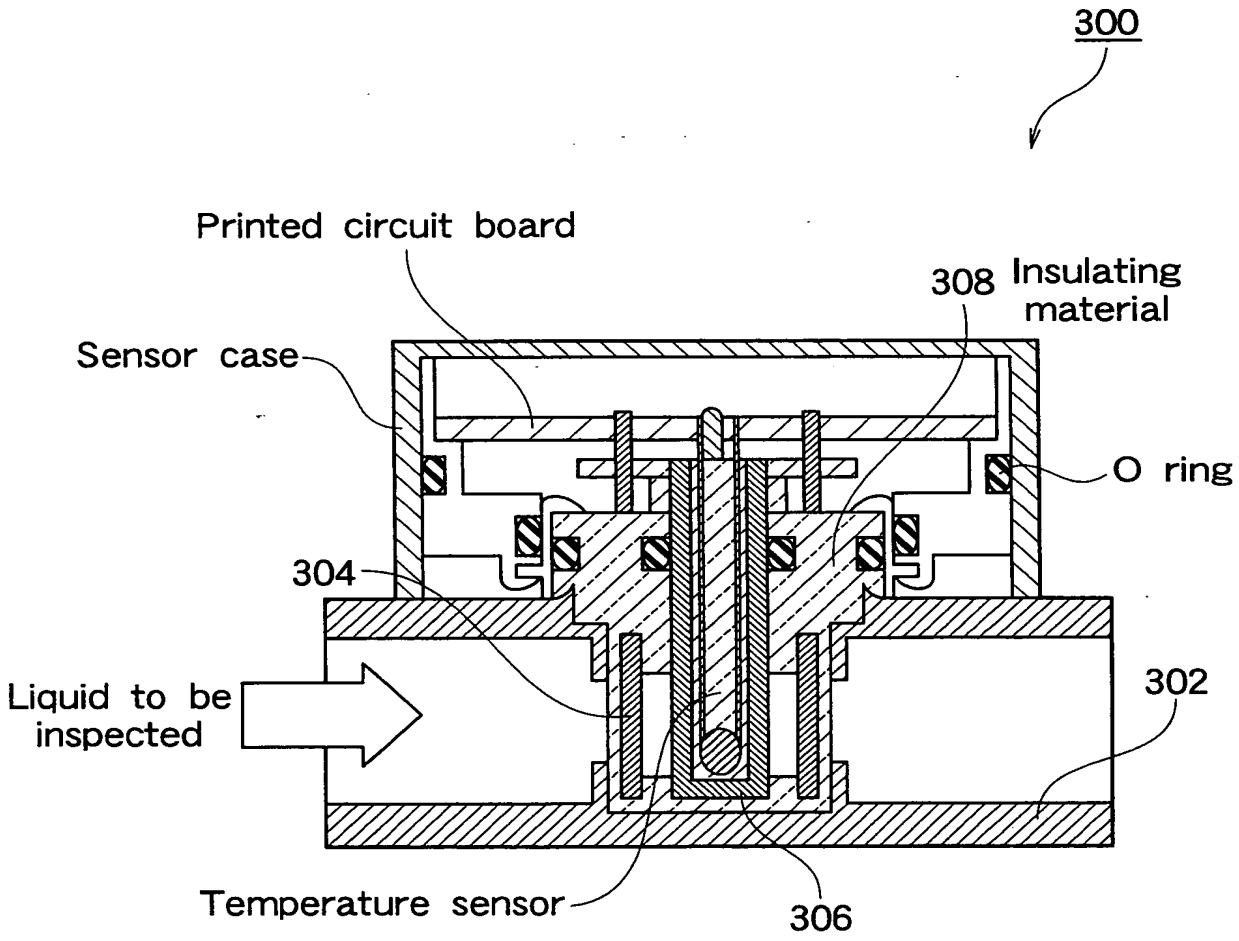



Fig. 31